

April 14, 2010

MEMORANDUM

TO: White House/OSTP Grand Challenge RFI

RE: Electromagnetic Energy Grand Challenge

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***The views expressed are those of the author and not necessarily those of organizations or individuals with which he is or has been affiliated.**

INTRODUCTION

The focus of this Grand Challenge RFI Response is on a specific class of “New Energy” known variously as electromagnetic energy, overunity energy, energy from the quantum vacuum, zero point energy, radiant energy, or magnetic energy. As used here, electromagnetic energy is a form of energy and the underlying science and technology that is not fossil fuel based and that transcends current nuclear and conventional renewable energies.

The Administration to date has funded numerous energy initiatives in the Department of Energy (DoE), Department of Defense (DoD), and other agencies. But the Administration has not, to this author’s knowledge, funded electromagnetic energy as defined here. Thus perhaps one of the greatest opportunities for revolutionary transformation in the energy sector remains unrealized, and unsupported by the US Government.

Electromagnetic Energy has not yet been allowed on the playing field. Upping the ante by making this a Grand Challenge would be a good way to up the profile and provide the necessary support and resources.

In a nutshell, I am proposing a new Grand Challenge focused on extracting energy from the active physical vacuum for use in disruptive, transformational, electromagnetic energy technologies.

ELECTROMAGNETIC ENERGY GRAND CHALLENGE TECHNOLOGIES

GRAND CHALLENGE SYNOPSIS: Scientific research over the last several decades has established that the so-called quantum vacuum is far from empty. Indeed, the quantum vacuum is seething with particles and anti-particles, highly varied electromagnetic fields. A more appropriate term for the quantum vacuum is the active physical vacuum. The integration of the original Maxwellian electrodynamics and quantum physics suggests the theoretical possibility of extracting usable energy from the active physical vacuum. Various laboratory experiments, models, and prototypes have demonstrated, in recent decades, some apparent ability to draw energy from the vacuum and produce energy output that exceeds the input energy, in conventional terms. These experiments and devices may appear at first blush to violate conservation of energy, but that is not the case, because the “extra” or “missing” energy is drawn from the active physical vacuum. However in terms of conventional input/output, these devices are over unity in the sense that the coefficient of performance (COP) is greater, sometimes much greater, than 1.0. So-called overunity electromagnetic energy devices offer the potential for myriad applications for both centralized and decentralized energy sources, fixed and mobile. They offer the prospect of very inexpensive, non-fossil fuel based, very low carbon footprint energy for transforming the US and global economies. Two prime examples are new or retrofit electromagnetic engines for automobiles and trucks, and new electrical generators for homes and offices.

What is the new breakthrough or knowledge that can be exploited in this Electromagnetic Energy Grand Challenge?

The core breakthrough integrates several scientific discoveries over the last century and a half.

First is the understanding of the active physical vacuum as containing unlimited virtual energy that can be converted to real energy by broken symmetry of the source dipole. Nobel prize winner T.D. Lee has stated that, in effect, broken symmetry can convert something virtual to something observable.¹

James Clerk Maxwell’s original circa 1860s equations of electromagnetics included 20 equations using quaternion mathematics, which were consistent with the concept of the active physical vacuum (but not understood per se at the time).² Maxwell’s original equations tried to account for active properties of the physical vacuum.

Circa the 1870s-1880s subsequent scientists, who did not understand the quaternion aspects of Maxwell’s equations or the concepts behind them, simplified Maxwell’s equations into the set of four equations which has been carried forward in electrical engineering textbooks to this day. These revised equations are sometimes known as the Heaviside-Gibbs-Maxwell (sometimes the name of Hertz is included as well) equations, giving credit to Heaviside and Gibbs who took a lead role in simplifying the Maxwell’s original equations.

In 1892 Lorentz further simplified the Heaviside-Gibbs-Maxwell equations by discarding all asymmetric terms and in effect requiring symmetry in the equations.³ And in 1900 Lorentz further simplified the

¹ T.D. Lee, Particle Physics and Introduction to Field Theory (New York and London: Harwood Academy Publishers, 1981), p. 181.

² James Clerk Maxwell, A Treatise on Electricity and Magnetism (Oxford, England: Oxford University Press, 1873).

³ H.A. Lorentz, “The Electromagnetic Theory of Maxwell and Its Application to Moving Bodies,” Arch. Neerl. Sci., Vol. 25, 1892, pp. 363-552. Also in H.A. Lorentz, Collected Papers (The Hague: Martinus Nijhoff), Vol. 2., pp. 168-238, esp. 168.

equations by discarding other terms that did not seem at the time to have any physical significance.⁴

These simplifications of the Maxwell's original equations occurred during a time prior to the scientific discovery of quantum physics and the active physical vacuum. And because quantum physics has not yet been fully integrated with Maxwell's original equations in the mainstream science community, the revised Maxwell equations still exclude the now widespread knowledge that the physical vacuum is active at the quantum (sub-atomic) level. The result is that Maxwell's revised equations are out of alignment with physical reality in that the ability to extract energy from the vacuum using asymmetric source dipoles is not yet included mathematically. Actually, all electromagnetic devices are drawing energy from the vacuum (whether the engineers recognize it or not), but that ability is severely limited by the use of symmetric circuits and loading (as prescribed by the revised Maxwell equations) which cancel out much of the source energy.

Since the time of inventor Nikola Tesla (starting in the late 1800s), a long string of inventors has discovered and to some extent engineered the extraction of energy from the vacuum.

To quote Tesla:

“Ere many generations pass, our machinery will be driven by a power obtainable at any point in the universe. This idea is not novel... We find it in the delightful myth of Antheus, who derives power from the Earth; we find it among the subtle speculations of one of your splendid mathematicians... Throughout space there is energy. Is this energy static or kinetic? If static our hopes are in vain; if kinetic—and this we know it is, for certain—then it is a mere question of time when men will succeed in attaching their machinery to the very wheelwork of nature.”⁵

“Electric power is everywhere present in unlimited quantities and can drive the world's machinery without the need of coal, oil, gas, or any other of the common fuels... We have to evolve means for obtaining energy from stores which are forever inexhaustible, to perfect methods which do not imply consumption and waste of any material whatsoever. I now feel sure that the realization of that idea is not far off...the possibilities of the development I refer to, namely, that of the operation of engines on any point of the Earth by the energy of the medium...”⁶ (medium refers to the active physical vacuum)

Tesla did in fact in the 1890s demonstrate the remote transmission of energy, at least on limited scale, at his Colorado Springs, CO, laboratory. While some of Tesla's plans and ideas never came to fruition, he was granted dozens of US patents, and various of his inventions were successfully demonstrated and several commercialized. But the remote transmission of energy and extraction of energy from the “medium,” while demonstrable, were not commercialized, apparently in part because those applications conflicted with the perceived competitive interests of the then nascent electric power and machinery industries.

Since Tesla's time, dozens of other inventors have developed and demonstrated working models and prototypes of Tesla's concept of obtaining usable energy from the active physical vacuum. Tesla was truly a man ahead of his time, and ahead of the quantum physics scientific discoveries that would provide support for Tesla's (and Maxwell's) intuitive understanding that the medium was active not passive, and that vast electromagnetic energy could be drawn from the medium (the active physical vacuum).

⁴ H.A. Lorentz, *Vorlesungen über Theoretische Physik an der Universität Leiden*, Vol. V, Die Maxwellsche Theorie (1900-1902), Akademische Verlagsgesellschaft M.B.H, Leipzig, 1931, “Die Energie im Elektromagnetischen Feld,” pp. 179-186.

⁵ Nikola Tesla, speech in New York to the American Institute of Electrical Engineers, 1891. Quoted from Margaret Cheney, *Tesla: Man Out of Time* (Englewood Cliffs, NJ: Prentice-Hall, Inc.).

⁶ Nikola Tesla, speech commemorating his installation of generators at Niagara Falls, NY, 1897, Ibid.

Neither Tesla nor other inventors following in his footsteps are talking about perpetual motion or similar types of machines. Energy is conserved. Energy in equals energy out. It is just that the energy in includes explicit recognition and capture of energy from the quantum vacuum. This quantum energy is not recognized in conventional electrical engineering, and thus the Tesla-type machines “appear” to have COP (coefficient of performance) over unity, and thus the name “overunity.” They are not overunity when quantum energy input is considered, but they are overunity when only conventionally measured energy inputs and outputs are included. So these technologies might seem like magic to some, but actually are based on sound science utilizing both quantum physics and versions of Maxwell’s original equations (not the truncated, revised, and simplified version that is taught in EE classes).

For a related scientific overview and analysis, see T.E. Bearden, “Errors and Omissions in the CEM/EE Model (Classical Electromagnetics/Electrical Engineering Model),” available on the web.⁷

How does the Electromagnetic Energy Grand Challenge offer transformational impact potential in key national mission areas?

Overunity electromagnetic energy technologies offer the potential of transformational impact in the following illustrative areas:

Electrification of Transport—Overunity electromagnetic engines offer the prospect of replacement engines for automobile and truck transport. These engines would require at most a minimum charging to start the engine, and would run indefinitely without recharging. Current battery technology would be sufficient for charging, and battery lifetimes without recharging would be measured in years, not weeks or months. Overunity EM engines could be adapted for long haul transport, including regional and transcontinental trucking. Over unity EM engines also could be adapted to trains and boats. It should be feasible to retrofit over unity EM engines to autos, trucks, trains, and boats. This would drastically reduce US dependence on foreign or any oil and would cut transport-related emissions by orders of magnitude. This would be a virtually zero-carbon, domestically powered transportation sector, with the possible exception of airplanes (in the near to midterm, long term even aircraft retrofit may be possible).

Advanced Vehicle Technologies—Overunity electromagnetic engines would drastically increase the fuel efficiency of vehicles of all types, and would enable a large reduction in fossil fuel usage in the transportation sector, as noted. The engines would be a novel engine design, and couple well with other improvements in vehicle materials, components, efficiency, and weight. The overunity electromagnetic engines likely would over time spur further improvements in vehicular design and performance.

Low Cost, Scalable, Dispatchable Centralized Renewable Power—Overunity electromagnetic energy production technologies could be scaled up in size to serve as centralized renewable power stations that could provide power on demand and connect to a smart energy grid. Overunity electromagnetic energy stations could substitute for some current and planned conventional coal, oil, and natural gas power plants. It is conceivable that overunity electromagnetic energy production technologies could be retrofitted into some existing or decommissioned conventional fossil fuel power plants or even decommissioned nuclear plants (once the spent fuel rods and contaminated waste water were removed). It is likely that new or retrofitted electromagnetic energy plants would cost much less than fossil fuel or nuclear plants.

Distributed Energy Technologies—Overunity electromagnetic motors and generators are ideally suited for distributed, decentralized installation at homes, offices, and schools. It is conceivable that many homes and buildings could have overunity electromagnetic generators sized to meet the building’s entire needs

⁷ Thomas E. Bearden, “Errors and Omissions in the CEM/EE Model,” June 27, 2005, <http://www.cheniere.org/techpapers/CEM%20Errors%20-%20final%20paper%20complete%20w%20longer%20abstract4.doc>

for electric power. Overunity generators could be retrofitted into existing buildings and feed directly into the pre-existing AC power circuits, using installed wiring, switches, and sockets. Eventually, some range of home and office appliances and electronics gear would likely embed overunity energy motors and generators, and basically take that equipment off line (off the building's power circuits). This would result in a mix of on and off network electrical power.

How does the Electromagnetic Energy Grand Challenge represent a transformational departure from the current state-of-the-art?

Obviously, the overunity electromagnetic energy technologies are dramatically different in effectively drawing much greater energy flows from the active physical vacuum for useful work, and overcoming many of the limitations of non-renewable energy sources, and even some of the limitations of other renewables. Overunity electromagnetic technologies can properly be considered a renewable energy source, since the energy drawn from the active physical vacuum is constantly replenished (or some scientists would say is of almost infinite potential supply). The overunity electromagnetic energy technologies offer some of the advantages of renewable while not being limited in application to areas with high solar intensity, wind profile, or water or geothermal flows. Overunity electromagnetic energy technologies should easily mesh with other renewables in a national smart grid linking a variety of centralized and decentralized energy sources.

What evidence/data exists to indicate that the Electromagnetic Energy Grand Challenge holds promise to provide transformational improvement in performance/cost over the current state-of-the-art?

Since the heyday of Nikola Tesla, numerous US inventors and engineers have experimented with overunity electromagnetic technologies. At least several dozen, and perhaps more, technologies have reached the point of model and prototype testing. While the results have been varied and mixed, not surprising considering the limited funding, several prototypes have demonstrated what appears to be overunity (COP greater than one), again with the understanding the COP is measured in conventional energy input/output terms.

The net sum of these experiments, models, and prototypes indicates that as group, overunity electromagnetic technologies offer the real promise of transformational improvement in performance and cost over conventional energy technologies, and compared to conventional renewables as well.

Here is a partial list of relevant model and prototype development and testing:

1. Solid State Self-Powered Vacuum Triode, known as the Sweet Vacuum Triode. For info, see web site,⁸ and paper by Floyd Sweet and T.E. Bearden;⁹
2. Motionless Electromagnetic Generator (MEG). US Patent issued to S.L. Patrick, T.E. Bearden, J.C. Hayes, K.D. Moore, and J.L. Kenny, for info see paper and patent at web site;¹⁰

⁸ See <http://www.cheniere.org/misc/sweet.htm> .

⁹ Floyd Sweet and T.E. Bearden, "Utilizing Scalar Electromagnetics To Tap Vacuum Energy," Proceedings of the 26th Intersociety Energy Conversion Engineering Conference, Aug. 4-9, 1991, Boston, MA, Vol. 4, "Advanced Energy Concepts," pp. 370-375, <http://www.cheniere.org/techpapers/sweet%20bearden%201991/sweet%20bearden%201991.htm>

¹⁰ http://www.cheniere.org/techpapers/Fact_Sheets/Fact%20Sheet%20-%20MEG%20-%20How%20it%20works1.doc , http://www.cheniere.org/references/MEG_Patent.pdf , and <http://www.cheniere.org/megstatus.htm>

3. Patterson Power Cell. Several US Patents issued to James A. Patterson, for info and patent citations see web site;¹¹
- 4.
5. Chung Negative Resistor. See paper by Shoukai Wang and Deborah Chung, replicated by J.-L. Naudin;¹²
- 6.
7. Johnson Magnetic Motor. US Patents issued to Howard R. Johnson (deceased), for info and patent citations see web site;¹³
- 8.
9. Kawai Motive Power Generating Device. US Patent issued, for limited info and patent citation see web site;¹⁴
- 10.
11. Fogal Charge-Barrier Semiconductor. US Patents issued to William Fogal, for info see web site;¹⁵
- 12.
13. Moray Radiant Energy Device. Patent pending, Dr. T. Henry Moray (deceased), son is pursuing, for info see web site;¹⁶
- 14.
15. Tesla Single Wire Circuit. Developed by Nikola Tesla, theoretical validation years later by T.W. Barrett, for info see web site.¹⁷
- 16.

For additional examples of relevant pilot tests or prototypes, see:

Jeane Manning and Joel Garbon, [Breakthrough Power: How Quantum Leap New Energy Inventions Can Transform Our World](#) (Amber Bridge Books, 2009), esp. chapters 9, 11, and 15;¹⁸

Tom Valone, Future Energy Research Program, esp. items #1, 2, 3;¹⁹ and

Steve Greer and Ted Loder, The Orion Project.²⁰

¹¹ <http://www.cheniere.org/misc/antistokes.htm>

¹² <http://www.cheniere.org/misc/chung.htm#1>

¹³ <http://www.cheniere.org/misc/johnson.htm>

¹⁴ <http://www.cheniere.org/misc/kawai.htm>

¹⁵ <http://www.cheniere.org/misc/fogal.htm>

¹⁶ <http://www.cheniere.org/images/people/moray%20pics.htm>

¹⁷ <http://www.cheniere.org/misc/tesla%20single%20wire.htm>

¹⁸ <http://breakthroughpower.net/Home.html> , http://www.amazon.com/reader/0981054307?encoding=UTF8&ref_=sib%5Fdp%5Fpt#noop

¹⁹ <http://www.integrityresearchinstitute.org/FutureEnergy.html#3>

²⁰ <http://www.theorionproject.org/en/index.html>

Does the Electromagnetic Energy Grand Challenge hold legitimate promise to eventually become a cost-effective, scalable new energy technology? What are some potential pathways to cost-effective scale up of the new energy technology?

Based on small-scale test models and prototypes, using a variety of technical designs, the overunity electromagnetic energy technologies as a group do appear to offer legitimate promise to offer cost-effective, scalable energy production. Two of the most promising pathways are: 1) replacement automobile and truck engines, which could be retrofitted into existing vehicles as well as incorporated into new vehicle designs. These electromagnetic engines eventually could be mass produced. 2) home energy generators, which could be installed in existing structures as well as incorporated into new housing construction. These home energy generators likewise eventually could be mass produced. For both vehicle engines and home energy generators, the logical pathway would be from models and working prototypes, to prototype product development, to commercialization for small-scale production, and finally scale up for mass production.

What specific enabling scientific or technological breakthroughs will be required to move the Electromagnetic Energy Grand Challenge towards deployment?

While the basic science is understood by some specialists, the relevant science needs to be integrated and synthesized in a manner that can be understood by a broader science and engineering community. This work could start immediately, or as soon as funding could be provided. This would require involvement of quantum physicists familiar with the active physical vacuum, non-linear, non-Abelian electrodynamics, and electrical engineers well grounded in the original Maxwellian electromagnetic theory, the work of Nikola Tesla and other pioneers in this realm, and the intersection of quantum physics and electrical engineering. The breakthrough needed is not one of new science, but to integrate the cumulative science knowledge developed in several disciplines over the last 150 years, including the works of early masters that may have been discarded or not fully understood or applied earlier.

In sum, the science is there, but what is needed is a paradigm shift in understanding resulting from a really good synthesis and integration. I am confident this can be accomplished, with the right interdisciplinary team, within a reasonable amount of time (like one year).

Two technological breakthroughs seem important, and both are imminently doable. One is to engineer the transition from working prototypes to produce specific prototypes that align with potential commercial applications, such as vehicle engines and home energy generators. A second is to design and development the test equipment required to properly and accurately measure the performance of overunity electromagnetic energy technologies. There is already a fair amount of experience with this type of testing and required equipment, but that experience is scattered and of variable consistency and quality. An effort is needed to synthesize and integrate experience to date, and to develop or adapt test equipment to meet this specialized purpose, in a manner that is open sourced and transparent so that physicists and engineers can be confident in the test results.

What are the foreseeable barriers to the Electromagnetic Energy Grand Challenge, including non-technical barriers, and how will they be overcome?

The major barrier to overunity electromagnetic energy technologies is the perception that such technologies are not possible physically, that one cannot get more energy out than is put into a device, and that such technologies are akin to so-called perpetual motion machines. None of these perceptions are scientifically valid, but serve as a barrier nonetheless. As noted, overunity only applies to traditional sources of energy inputs and outputs. Conservation of energy is preserved, because the energy input drawn from the active physical vacuum equals the energy output of the devices (less any small losses within the device). Overunity electromagnetic energy devices do not get more energy out than is put in, when including the energy drawn from the active physical vacuum, and are not perpetual motion machines in the sense that a continuous flow of energy from the active physical vacuum is required.

The science behind the overunity electromagnetic energy technologies has been developed actually over the last 150 years or so, but has not been recognized as such in the mainstream science or energy communities. The relevant science requires a cross-integration of quantum non-linear physics and the original Maxwellian electrodynamics.

The second major barrier is likely to be resistance particularly from the fossil fuel industries, because overunity electromagnetic energy technologies are likely to be a significant threat to the predominance of fossil fuel up until the present time. Automobile and truck manufacturers are more likely to embrace overunity electromagnetic energy technologies because of the ease of engine retrofit, and because engines are just one (albeit important) component of autos and trucks. Likewise, appliance and electronics manufacturers, train and boat manufacturers, and similar, are likely to view overunity electromagnetic engines as just another evolution in engine technology, albeit one that does not require fossil fuel sources. Overunity electromagnetic energy technologies could help revitalize the US auto, truck, train, and boat manufacturing sectors, and help bring back to the USA some of the manufacturing capacity in these sectors that has gone overseas in recent decades.

A third barrier will be transitioning from test models and prototypes to production line devices. This has not been done before in the overunity electromagnetic engine, motor, or generator sectors. However, this transition should in many respects be similar to the transition that has been successfully made for other types of electrical and electromagnetic devices. Indeed, it is conceivable that current electrical equipment manufacturers eventually could readily adapt their production lines to overunity electromagnetic devices, should they decide to do so. Again, the hope would be to revitalize this manufacturing sector.

A fourth barrier could be financial, in that heretofore inventors and entrepreneurs have had difficulty getting angel and venture capital funding for overunity technology development work. This has been in part due to the skepticism noted earlier, and the prior lack of support or interest from the US Government energy research agencies. It seems likely that a successful US Government funded or co-funded program would position the overunity electromagnetic energy technology sector to eventually receive favorable responses from commercial investors and financiers.

CONCLUSIONS AND ACKNOWLEDGMENTS

The group of technologies included within the Electromagnetic Energy Grand Challenge has in common drawing or extracting energy from the active physical vacuum. This group of technologies, also known as overunity or zero point energy technologies, is a key missing component of the overall USA energy strategy. This component has game changing, paradigm shifting potential that could help the USA overcome numerous major challenges. But as yet, this group of technologies apparently is either not recognized at all or perceived as too far outside the mainstream or perhaps too revolutionary to be pursued by the US Federal Government.

To the contrary, I would argue that the Electromagnetic Energy Grand Challenge is exactly the type of program that warrants US Government support, in the interests pursuing many of the current Administration's goals and objectives. It is likely that this Grand Challenge would capture the interest and imagination of IT and Internet companies and entrepreneurs, as well as energy companies and entrepreneurs.

The individuals and organizations mentioned in this paper, and others like them, would be a wonderful source of knowledge, experience, perspective, and wisdom for moving this Grand Challenge forward on an expedited basis. The results could be an important part of the solution set to numerous other sector issues, including economic revitalization and jobs creation, transportation, food, water, environmental and resource sustainability, and rebuilding the US industrial base and reinvigorating its scientific and technical leadership and inspiring and motivating the next generations. Yes we can do it. The Electromagnetic Energy Grand Challenge could spark an energy revolution just as important as the IT and Internet revolutions that have taken place over the last couple of decades.

In the words of CAPT Jean Luc Picard of the USS Enterprise, as he gives the order for warp speed, "Make it so."

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The author of this Electromagnetic Energy Grand Challenge proposal wishes to acknowledge the substantial contributions to the science and development of this field by Thomas E. Bearden, LTC (Ret), who has dedicated much of his professional life to the development of new science and technology to help solve the national and global energy crisis. Most of Mr. Bearden's life works are available via his web site, www.chenierye.org.

For additional discussion by T.E. Bearden of a "National Energy from the Vacuum" program, see:

T.E. Bearden, "Phases of Research and Development and Some Problems: Implications for a National Energy-From-The-Vacuum Program," Sept. 3, 2007;²¹

T.E. Bearden, "Part II: Skills and Tasks in the Phases of Research and Development," Sept. 7, 2007.²²

Finally, the author wishes to acknowledge the contributions of the New Energy Movement, New Energy Congress, New Energy Foundation, Integrity Research Institute, and Orion Project to the development of the field of new energy that includes but is not limited to overunity electromagnetic energy technologies.²³ Additionally, the author acknowledges the Earth Regeneration Society (Alden Bryant), and the Computer Social Impact Research Institute (the late Fred Bernard Wood) as tireless advocates of new energy as a key component of comprehensive environmental protection, sustainability, and climate stabilization programs.²⁵

T.E. Bearden Technical Note on Extracting Energy from the Vacuum

Thomas E. Bearden has provided the following technical description of how electrical circuits could be designed to extract virtually limitless energy from the active physical vacuum.

1. You do not need to "draw power" from the generator/source in order to power the loads. We spell out one way to power the external circuit and its loads and losses, via use of "static" voltage alone. A common dipole will FREELY furnish static voltage (electrostatic scalar potential) forever, so long as no current is drawn from the dipole in the process.

²¹ <http://www.chenierye.org/briefings/EFTV%20R&D%20National%20Program%20Aspects.doc>

²² <http://www.chenierye.org/briefings/EFTV%20R&D%20National%20Program%20-%20Skills%20and%20Tasks.doc>

²³ <http://www.newenergymovement.org/> , <http://www.peswiki.com/energy/>
[Free_Energy_Congress](http://www.free-energy-congress.com/) , <http://www.infinite-energy.com/whoarewe/whoarewe.html> , <http://www.integrityresearchinstitute.org/> , <http://www.theorionproject.org/en/index.html>

²⁴ Also see Pure Energy Systems Wiki, http://www.peswiki.com/index.php/Main_Page ,and Infinity Energy Magazine, <http://www.infinite-energy.com/> .

²⁵ <http://www.earthregenerationsociety.org/> , and <http://www.fredbernardwood.org/> .

2. A "volt" of static potential interacting with a coulomb of charge triggers the collection (potentialization) of that charge with one joule of EM energy. So all the "energy" that we dissipate in the external circuit (and our loads) comes from "potentialization" of the interacting voltage with the charge.
3. If the charge is momentarily pinned when this interaction (potentialization) occurs, all that we "draw" to the external circuit is static voltage. And yet we potentialize all those pinned electrons so that the external circuit now contains lots of potentialized EM energy stored up, without ever drawing any current in said external circuit.
4. Now, while the external circuit is still "pinned" and statically potentialized, we switch away the generator/source. This opens and frees the external circuit with its trapped potential energy, still with its charges momentarily pinned.
5. We also switch a series resistor (load) and diode across that just-opened end of the external circuit, so that now it has become a SEPARATE circuit, but one that is already potentialized with excess energy collected in it.
6. Then the electrons in this now-separate and closed external circuit come unpinned. In that case, the current flows around the circuit through both its forward emf area (powering the loads) and its back emf area (killing its own dipolarization). With good switching, the amount of energy dissipated in the loads to do real work is greater (can be far greater) than the switching current we utilized to separate the circuit and the original source.
7. We then switch back to original configuration with electrons again pinned in the external circuit, and re-potentialized the pinned circuit with "static" voltage.
8. We then repeat this cycle over and over, continually producing much more power in the loads than we utilize in our switching circuitry.
9. The reason this rigorously works is that "static" voltage is not "static" at all. Coming from a source dipolarity, it is simply an outgoing steady-state stream of real photons, whose energy has been received by the dipole directly from the virtual state vacuum in virtual photon form. The assemblage of the absorbed virtual state excitations into observable state excitations follows directly from the major characteristic of broken symmetry: something previously virtual has now become observable. And the common source dipole is a rigorously proven broken symmetry, well-known in physics.
10. To make the described system self-powering, we simply add a bit of circuitry so that the small amount of power used to do the switching between the two states of the overall circuitry is taken directly from the external circuit itself, as a "powered load".
11. No laws of physics are broken. Instead, we are ASYMMETRICALLY using our circuitry, whereas since 1892 and Lorentz' deliberate symmetrizing of the original Heaviside equations, the electrical engineering discipline has used only a self-limited SYMMETRICAL model (the mutilated Heaviside-Lorentz model).
12. There are several means of pinning readily available in the literature and well-known. Since switching can easily be done in a microsecond these days, there is no problem at all in using such a circuit.

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