

Possible Technical Solutions to Lake Mead Water Shortage

Both Boulder City and Las Vegas, Nevada are jeopardized by Lake Mead's dropping water level. I have selected the following possible technical solutions from my accumulated inventory of energy inventions – nearly all of which are documented in my website www.padrak.com/vesperman.

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Many thanks are due to Las Vegas energy expert Robert Nelson for his comprehensive compilation of numerous energy inventions in his www.rexresearch.com.

Brief Summaries

Solar-powered Watly provides internet, energy, and drinking water for Ghana residents – Watly is the world's first, and largest, solar-powered computer that uses thermal technology to provide clean water, electricity, and Internet connectivity to about 750 people. (Page 3)

Air Wells – Air wells are structures or devices that collect water by condensing moisture from air. (P. 13)

Hydrosonic Pump – A hydrosonic pump is a mechanical rotating machine which converts plain water to steam at zero pressure without the need for hot surfaces. (P. 14)

Spiteri Water Pump – The submerged Spiteri water pump efficiently converts hydraulic energy into mechanical energy without fuel nor pollution. This mechanical energy then pumps water uphill into a reservoir. (P. 16)

Environmental Heat Engines – At least five different types of efficient and pollution-free environmental heat engines absorb ambient heat to expand a working fluid such as Freon or ammonia and push pistons through sealed chambers to provide useful net mechanical power. (P. 16)

Researchers Discover Massive Freshwater Reserves under the Ocean – Researchers claim to have found 500,000 cubic kilometers of low-salinity water hidden beneath the seabed on the continental shelves around the globe. (P. 19)

Primary Water – Primary water originates through chemical processes deep within the earth. Japanese laboratory experiments have shown that there may be up to five times more water deep underground than in all the oceans, lakes and rivers combined. Enormous quantities of pure virgin water can be located with the aid of dowsing and withdrawn from crystalline rocks – particularly hard desert rocks. (P. 19)

Water Purification with Electrical Coils – Proven designs for coils to be used worldwide for HHO production and ozone for water purification and (oddly enough) pest control. (P. 22)

NanoCeram Water Purification Technology – NASA supported the development of NanoCeram for purifying water in manned space vehicles. NanoCeram eliminates multiple contaminants, including disease-causing microbes such as cryptosporidium and *E. coli*, while still maintaining a usefully high flow rate. (P. 22)

Etheric Weather Engineering – Native American rain/sun dances around circles and carefully designed and built objects no larger than a wastebasket have repeatedly been demonstrated to manipulate weather within several miles in radius. (P. 23)

Dynamic Vapor Recovery with Zero Discharge of Brine – Salttech’s Dynamic Vapor Recovery system can cheaply recover up to 97% clean water from any water containing dissolved salts and other solids and contaminants of up to and over 300,000 parts per million including ocean water. Their process is also highly energy efficient and runs automatically 24/7 without fouling nor scaling. (P. 31)

Atmospheric Water Generation – Post-processing units are added to existing air conditioners and refrigeration units to produce potable water. (P. 31)

OASIS Machine – This device produces water by flowing air over a surface colder than the air’s dew point temperature. (P. 34)

Hydrogen Production – Hydrogen production with natural gas is typically cheaper than water electrolysis. Hydrogen production with water electrolysis has been doubled with the recent discovery of applying a layer of copper atoms under the platinum catalyst surface. (P. 41)

Water-Energy Miracle – How to build an appliance in your home that provides free off-the-grid electricity, a continuous unlimited supply of uncontaminated fresh water, and full-time heating, ventilating, and air conditioning. The energy is produced by using water as fuel. (P. 43)

OASIS Machine Business Plan and Technology – Steps are outlined to create a profitable business and practical technologies. The goal is to provide the tools and teach people everywhere how to produce their own energy, water, and food, and forever eliminate the curse of drought. (P. 46)

Graphene Desalination Membrane – Highly energy-efficient graphene desalination membrane can achieve almost 100 percent rejection of salt ions while allowing water to flow through at a rapid pace. (P. 53)

Solar-powered Watly provides internet, energy, and drinking water for Ghana residents

The mission of Watly The mission of this company is about improving global living standards and the standards that need to be mostly improved are those of about 5 billion people still living in the developing world.

I have once read a book that since, has guided me while building this company. This book entitled “Abundance – The future is better than you think” – by Peter H. Diamonds, Steven Kotler – raises a very relevant question.

I would like to report an extract of the book’s prologue: “For those of us living in the developed world, why should we care? After all, there are plenty of important issues facing us here at home. Both US unemployment rates and foreclosure rates are soaring, so humanitarian reasons aside, should we really waste our time working toward an age of global abundance?”

The answer to this question is “Yes”.

“Our days of isolation are behind us. In today’s world, what happens ‘over there’ impacts ‘over here’. Pandemics do not respect borders, terrorist organizations operate on a global scale, and overpopulation is everybody’s problem. What’s the best way to solve these issues? Raise global standards of living.

Research shows that the wealthier, more educated, and healthier a nation, the less violence and civil unrest among its populace, and the less likely that unrest will spread across its borders. [...] there is a direct correlation between quality of life and population growth rates, as quality increases, birth rates decrease. The point is this: In today’s hyperlinked world, solving problems anywhere, solves problems everywhere.

Moreover, the greatest tool we have for tackling our grand challenges is the human mind. The information and communications revolution now underway is rapidly spreading across the planet. Over the next eight years, three billion new individuals will be coming online, joining the global conversation, and contributing to the global economy. Their ideas—ideas we’ve never before had access to—will result in new discoveries, products, and inventions that will benefit us all.

If you, dear reader of this page, are a philanthropist or an impact investor, you should know by now that by supporting Watly, you are supporting this common mission. We are certainly a team of people that has deeply embraced this grand challenge and made it our professional and personal journey.

I have once said “What you do can change the world for a moment. Why you do, can change the world, possibly forever”.

Today, I say “We are W people, We are a W company”

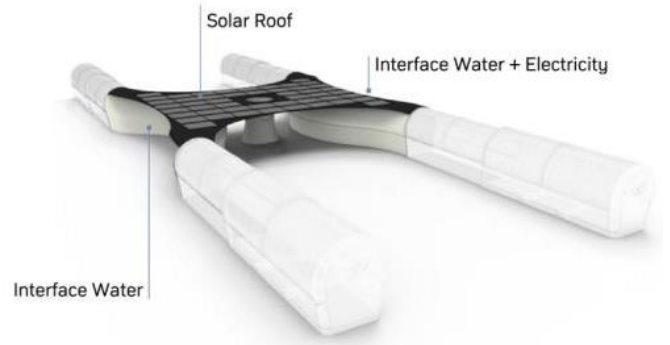
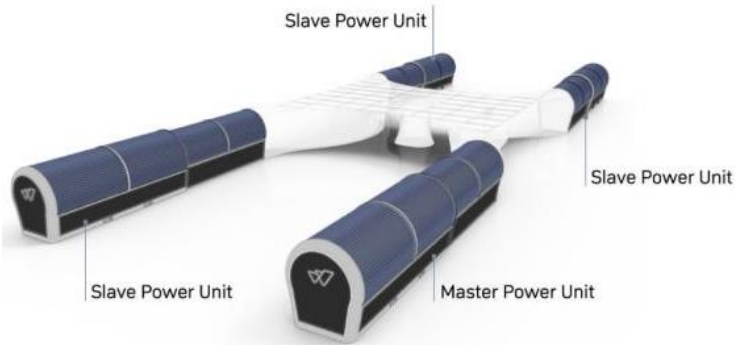
There is a reason for supporting Watly. This reason is that behind this company there is a group of committed people who really believe that “Abundance for all” is our common destiny.

Marco A. Attisani – WEO

Water, also called the ‘*Blue gold*’, is expected to become one of the biggest future causes of political and social distress. The Center for Disease Control estimates that 9.1 percent of global disease could potentially be prevented by cleaner water and improved sanitation. One European-based company is aiming to provide fresh, drinkable water; Internet connectivity; and free electricity to a community in need.

Thermal Power

Electric Power



Smart and friendly technology Watly represents a new paradigm in the relationship people have with technology. We had to completely rethink how water treatment systems and photovoltaic parks are engineered and constructed. We are introducing Watly, the most advanced and beautifully designed solar machine available on the market.

Clean water, electricity and connectivity for a world of abundance for all Watly is the world's first, and largest, solar-powered computer that uses thermal technology to provide clean water, electricity, and Internet connectivity to about 750 people. Measuring in at about 131 feet (40 meters) long, this machine can sanitize up to 1,320 gallons (5,000 liters) of water a day, while generating electricity that can be used to charge external devices. Watly is also built with a 3G/4G router that gives people access to the Internet.

The system uses a vapor compression distillation process and can desalinate sea water and get rid of pathogens and pollutants. Photovoltaic panels on top of the machine are used to generate electricity. The excess electricity, stored in a 140-kilowatt-hours internal battery, can be used to charge up gadgets, like smartphones, lamps, and laptops. The Watly offers up to 1,640 feet (500 meters) of Wi-Fi connectivity and can send any kind of data, such as texts, videos, and images.

Prototypes of the solar-powered machine have been tested in the last three years. The official trial took place in a village in Ghana – earning the company several awards and over \$2 million in funding.

Though this investment went towards building the pre-industrial version of the machine, the company has launched an Indiegogo campaign to expand the project. For one unit of the Watly system, the company would have to raise \$75,000 and receive the matching funds promised by a philanthropist. That type of unit would only provide clean water for the next 15 years. For \$325,000, an entire hub with built-in Wi-Fi capabilities and electricity can be built.

When it comes to renewable energy in developing nations, sometimes a solid multitasker is the way to go. That's the idea behind the Watly system, a solar-powered machine that stores electricity, purifies water, and connects local residents to the internet.

After running a pilot program with a stripped-down version of the machine in Ghana, the company is gearing up to create Watly 3.0, a bigger, better renewable energy machine.

Watly just launched a crowdfunding campaign on Indiegogo to raise funds for the upgraded system, which they casually refer to as 'the biggest solar powered computer in the world'. Measuring 131 feet (40 meters) long, Watly 3.0 is projected to generate as much as 1,320 gallons of water each day, every day, for at least 15 years. The system can purify water from all sorts of contaminants and even desalinate ocean water. The company says its machine can also provide device charging services for up to 3,000 people – all thanks to the power of the sun.

The company has been working on renewable energy concepts to serve developing nations since 2013. With offices in Spain and Italy, Watly is concerned primarily with helping communities in Africa by serving as many needs as possible with a single machine, without contributing to environmental damage or creating greenhouse gas emissions. The Watly 3.0 system promises all that and more.

“We could not design a modern solution and not think about integrating these three elements altogether,” a Watly spokesperson told Treehugger. “The beauty is that these services can be generated by exclusively harvesting solar energy. We provide clean water by leveraging the thermal effect of the solar irradiation. Through photovoltaic technology we generate electricity. With electricity we can power internal telecommunications devices (for satellite or 4G connection). Watly provides multiple services because each one is the consequence of the other.”

A 15-ton computer aims to provide clean water, electricity, and the internet to thousands of Africans. The creators of Watly, a 15-ton multitasking thermal dynamic computer, believe their machine could help address three developmental challenges in Africa in one go: clean water, electricity and internet connectivity.

The project – which is only in its prototype stage – aims to offer its machines as a solution to the infrastructural problems that communities all over Africa face. Marco Attisani, an Italian entrepreneur, hopes his creations will be set up on the outskirts of Africa’s growing metropolises to extend existing services. A third of Africans still don’t have access to clean water, according to the NGO WaterAid, and only about one in four sub-Saharan Africans have access to electricity, according to the World Bank. Despite the boom in mobile technology, internet penetration is at 28.6%, according to Internet World Stats.

Each arched Watly unit is fitted with photovoltaic solar panels that generate heat and solar power. Water is pumped into the tank and made drinkable through a process called vapor compression distillation, which uses solar thermal energy to vaporize water and separate it from contaminants ranging from sea salt to poisons. One machine could purify up to 3 million liters of water a year, Attisani says, and has a life span of up to 15 years. The whole process is driven by solar power, which allows the machine to generate enough off-grid electricity for itself and to charge devices that are plugged into it.

The machine would be connected to a central network management platform and to other Watly machines, creating a Wi-Fi zone with a radius of up to 500 meters. It links up via a satellite connection, radio link, or 4G network, according to the company’s website. Locals could also go online using the giant screens on either side of the 130-foot long machine.

The first Watly prototype was completed in 2013, and in 2015 a Discovery Channel initiative set one up in the village of Abenta in Ghana to test the human impact of this innovation. The Discovery Channel episode is set to air at the end of 2016, but the company is using it to market Watly’s potential.

An SUV gives a sense of the machines’ scale. Watly hopes to sell its machines to governments and telecommunications companies who want to expand their reach without having to build new towers and other expensive infrastructure.

A Watly 3.0 is in production in Italy and should be ready by June, said Attisani. It costs €400,000 (about \$453,000) to manufacture, he says, and its selling price has not yet been set. For now, the company has relied on nearly €20 million (\$22 million) in grants, including some funding from the European Commission’s Horizon 2020 fund for research and innovation. Watly has recently turned to the crowdfunding site Indiegogo to raise money for a second machine.

Watly’s modular, decentralized approach is a great alternative to large-scale projects, said Diran Soumonni, an innovation scholar at the University of the Witwatersrand in Johannesburg, but he is only cautiously optimistic about the prototype’s viability on a large scale.

“No matter how cool it is as a technical gadget, unless it gets used it’s not considered to be a successful innovation,” said Soumonni. Watly’s creators have demonstrated proof of concept, he said, but the real test will be how it will fit into everyday life.

One issue may be getting government buy-in. African governments historically prefer to invest in large, imposing legacy projects, he said, rather than sleek, cost-effective solutions.

And, he pointed out, it remains to be seen how much difference Watly will make in the lives of those it aims to help: Will they actually walk over to the Watly machine to charge their phones and get a drink of water?

Until it has been tested on the ground, it's unclear whether Watly will be a big success or yet another short-sighted innovation, made in Europe and sold to Africa, said Soumonni.

“This kind of solution, on the surface of it, is moving in the right direction,” he said. “What I would like to see is for African inventors who live embedded in these environments or are closer to them to be involved in some co-creation.”

Thermal Solar Power Central Unit Watly is composed of 4 thermal solar power units, with each unit equipped with an ‘arch shaped’ array of thermal solar vacuum tubes. Each power unit integrates an extendable telescopic wing that is closed during transportation, but that doubles the surface of the structure when fully opened. The main unit is called the Master, while the other three are called the Slaves.

Inside the Master unit is the core of the purification process of Watly, the unique and patented distillation system. Its main competitive advantage is that it requires a limited amount of thermal energy in order to purify soiled water by effectively distilling it, no matter how polluted it is. Thanks to the minimization of heat losses and the recovery of the latent heat of condensation, Watly's distillation method is 11 times more efficient than traditional distillation processes.

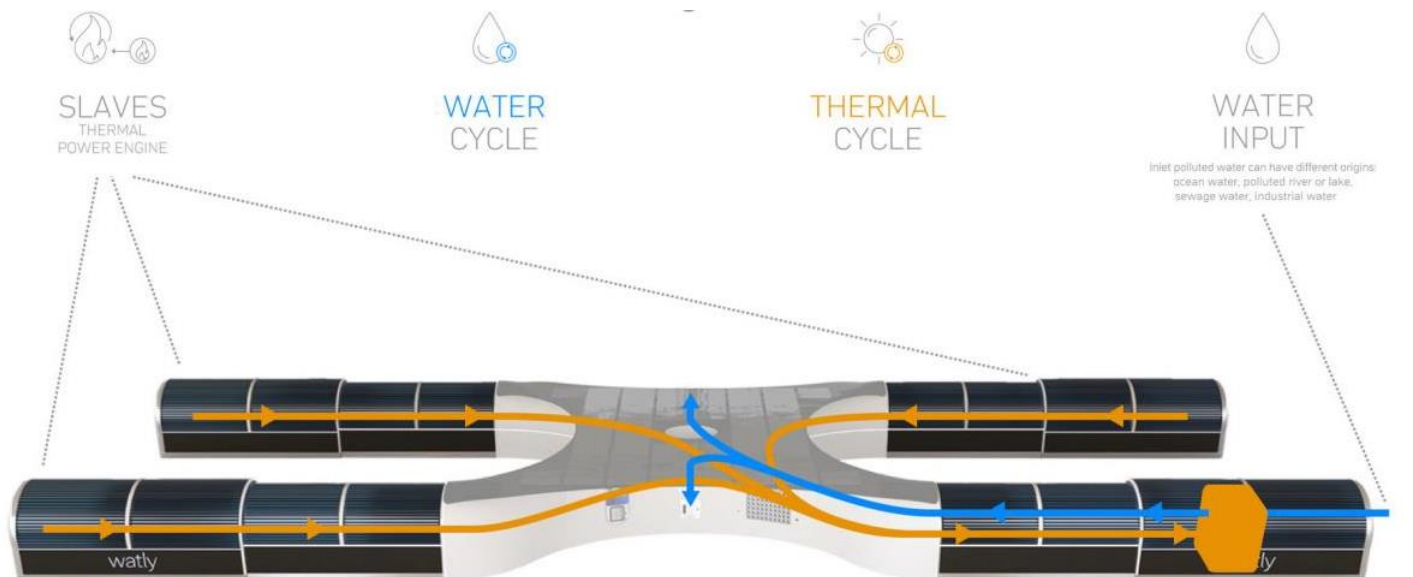
Numerous (160) square-meter solar thermal vacuum tube panels provide the thermal energy that is needed to run the process of water distillation. Watly's thermal panels are super-efficient and extremely resistant. Watly's unique ‘arch shape’ allows the thermal tubes to be optimally exposed to incident solar irradiation during the whole day. The solution emulates the advantages of a moving sun-tracker but is extremely simple and reliable in the long term.

The Solar Roof On top of the central unit is a solar roof with its array of 40 mono-crystalline photovoltaic panels. It has a nominal power of 10 kilowatts and generates up to 70 kilowatt-hours/day. Such an outstanding performance is obtained by maintaining the photovoltaic panels at optimal working temperature even under the hottest sunny days. Thanks to Watly's patented heat exchanger technology, the photovoltaic panels can work at their optimal nominal operating cell temperature of 25°C, even with outside temperatures of 50–90°C. Working at lower temperatures increases panel efficiency by 40–50%.

Watly generates both AC/DC currents in full compliance with all applicable standards and regulations. The energy in the form of electricity is stored in a 140 kilowatt-hour internal battery. The battery's storage capacity has been intentionally oversized, enabling the battery to cycle at optimal conditions and last much longer.

Watly's internal electronics are protected in a special compartment located inside the master unit (the master is one of the four thermal units, also called slaves). The compartment has an innovative temperature controlling system based on Peltier cells. Watly's electrical components are among the top rated on the market in terms of reliability and performance. The class of protection adopted is IP 67, and it ensures total protection against dust and water.

Water Watly purifies up to 3 million liters of water per year, and it works on solar energy too. Watly generates the very same energy it needs to function; it does not require fuel or a connection to the electric grid. Watly efficiently desalinates ocean water, eliminates all pathogens and microorganisms from previously polluted water, including: viruses, bacteria, parasites, fungi or cysts. It removes inorganic compounds as well as poisons: arsenic, benzene, heavy metals (such as lead), chlorine, chloramines, and radionuclides. It purifies water from any organic compounds and liquid contents of latrines. It does not need membranes or filter substitutions. It even purifies radioactive water.



The physical principle underlying this innovative system is called vapor compression distillation. It is by far the most effective and powerful method of water purification and desalination available. In terms of efficacy, it outperforms reverse osmosis, nano-filtration or ultraviolet purification methods.

Watly water quality is outstanding, absolutely pure, low mineralized and with a perfect pH balance (6.8 - 7.2). Water quality remains constant over the +15 years of Watly's lifespan.

W-Tank If Watly provides people with clean drinking water, W-Tank allows them to carry and keep it safe. W-Tank is user friendly and easy to carry and use. It has been designed for those situations where it is very difficult to preserve water's biological integrity. Each person is gifted with a personal W-Tank since it reinforces the idea that water is not a commodity but a precious substance.

In many parts of the world, water is often carried in tanks or jerry cans that are dirty, broken or even toxic. In this respect, even brand new standard tanks have a major drawback: they let water come into contact with external contamination.

The entire mission of giving people clean water has no meaning if the water itself is contaminated the moment it is collected or carried away.

W-Tank has the following unique features: The water flows in and out of the tank through a valve-sealed system; under no circumstances will this system let the water get in touch with dirt, pollutants or any bacteria whatsoever. Each W-Tank is equipped with a radio frequency system that is associated with a unique identification number.

Whenever the W-Tank is inserted into Watly's water dispenser, we collect valuable data regarding its owner, its general use, its physical status, its lifetime and the quantity of water it has contained.

We know that trips back home can be long and full of pitfalls; that's why W-Tank is designed with an ergonomic handle and a shoulder belt. Moreover, since kids and women are, in general, those who go and fetch water, we have designed W-Tank to be light and slim with a five-liter capacity. It can be reused an indefinite number of times and the expected lifetime is +5 years.

Watly automatically fills a W-Tank in 15 seconds by means of its unique water dispenser interface.

Electricity Watly generates the very same energy it needs to function. It does not need to be connected to an electric grid. Watly produces off-grid electricity to power its own internal electronics (computers, multiple-screens, 3D printers and different telecommunication devices), as well as external devices (portable computers, mobile phones, portable lamps, radios, televisions, household appliances). The free electricity generated by Watly is made available to people via multiple battery chargers and electric plugs.



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W-Light W-Light is a battery-powered portable LED light that gives light and power to people. W-Light provides hours of bright and safe light as well as the possibility to recharge phones and other handheld devices. It has 40000 milliampere-hours – a 5 V internal battery that provides up to 400 hours of light and/or recharge for up to 12 smartphones. Watly simultaneously recharges up to 100 W-Light in 5 hours (by electrical induction).

The user with a dead device plugs it into Watly's battery charger while exchanging it with a fully charged one. This process is automated, and it is not possible to take any other device if not leaving another one in its own place.

Connectivity Watly is a powerful communication device that can collect and send any kind of data to the Web.

Watly is a powerful communication device that can collect and send any kind of data (videos, images, audios, texts, ratios, etc.) to the Internet as well as to any other compatible communication device. A single Watly is a standing alone machine, but two or more Watlys become a network where each node is auto-powered, self-sustained and multi-functional.

A growing number of Watlys deployed around the world will contribute to form the next big thing – the so called ‘Energynet’ the global smart-grid in which water and electricity fuse together with information technology.

Human to Machine Watly interacts with people through different interfaces and multi-utilities workstations. There are three user-friendly water dispensers, one multi-battery charger, one 3D printer, one solar cooler, one ultraviolet rays sterilization chamber, one landing pad for drones, two LCD touch screens (for end user registration and communications), multiple webcams (6-10), and digital and facial recognition systems, plus different kinds of sensors (movement).

Every time the end user approaches the machine, the machine immediately recognizes him/her and attends to his/her basic needs. Watly collects and reports all types of human-to-machine interactions, as well as everything which happens in its proximity.

Machine to Machine Each Watly communicates with the Central Network Management Platform, as well as with other Watlys via radio-link, existing networks (3G/4G), and/or satellite connections.

Watly’s Central Network Management Platform can remotely communicate and monitor each unit of Watly in real time from anywhere. It is possible to run checks on the overall system, monitor performances, and change settings of water output (quantity, pH, mineralization level) through an internet connection.

Watly runs on biNu's efficient data protocol which enables super-fast, data-lite access to the Internet. The system minimizes mobile network bandwidth and allows rich contents to be displayed quickly, even on slow 2G networks. In the event of system failure – for example, software errors or hardware issues – the controlling platform can remotely resolve the problem by rebooting the system or by switching to backup equipment. If the problem is not solvable remotely, the field technician in charge can perform the required maintenance in a few hours by communicating directly with the Watly Technical Center.

Watly's internal electronics runs with REGIN’s programmable logic controller. It manages multiple internal devices such as temperature, pressure and humidity sensors; pump actuators, valves, solenoids, and counters. Watly is also equipped with external environmental sensors such as air pollutants detectors (CO, CO₂, NO, NO₂, O₃, SO₂, H₂S, VOC); electromagnetic fields and radioactivity detectors, and weather monitoring systems (wind direction and speed, atmospheric pressure, height of clouds, temperature, humidity, and average precipitation).

The general setting of the logic controller can be changed remotely based on specific needs. The system allows Watly to collect environmental data and to create reports regarding natural events, trends, and other formats of big data that for the most part of the world are still not yet available, but nevertheless are extremely useful and very coveted.

Drones Landing-Pad Watly: the ‘drone-airport-network’ in emerging countries.

The concept of being connected to the world should not be limited to that of ‘connectivity’. Connectivity refers to the state of being connected to the internet and its virtual data. Connectivity is also extended to ‘accessibility’ of physical objects such as books, tools, toys or medicines. This consideration is certainly sustaining the drone industry's recent growth. Drones are being deployed in the sectors of conservation, agriculture, energy, and

emergency services. These applications all involve some degree of automation – whether it be following a pre-determined flight path or homing in on a mobile phone signal.

Watly's location is always identified by unique GPS coordinates; sending and landing a flying drone is something quite easy to do, especially in remote locations where streets have no names.

In addition, since limited battery life is an obstacle that drone companies need to contend with in driving widespread adoption, Watly eliminates the need to pull a drone off of the job when it runs out of energy.

Watly's landing pad is also a 100-watts recharger dock. Using it to recharge a drone is as simple as landing on it, since it is compatible with nearly all existing multi-copters and VTOL aircrafts. Built for outdoor use the extremely weatherproof landing pad acts as a remotely controlled charging station in a variety of drone applications from farming to surveillance and transportation of medicines and objects.

Life Span Watly's operational lifespan is of +10 years, even in the harshest environmental working conditions. Watly's lifespan can be extended beyond this limit with a complete checkup and a thorough maintenance intervention (+15-20 years).

Low Footprint Once installed, Watly generates electricity and provides clean water with a zero carbon footprint. During its 15 years of service, one Watly can reduce as much as 1000 tons of greenhouse gas emissions (CO₂), which is equivalent to 2500 barrels of oil. Watly also aims to reduce as much as possible the carbon footprint 'during' the production phase of its devices. Watly is applying for life cycle inventory and impact assessment and plans to recycle up to 82.7% of its components.

Maintenance Anyone with basic technical knowledge and minimum skills can manage Watly. The Watly has been designed to be fully autonomous and to require a minimum level of ordinary maintenance. In any case, should some intervention be needed, end users are always provided with a detailed but intuitive and friendly maintenance manual. Watly has local partners in each country to perform those technical interventions that do require specific training in possible failures, breakdowns, and ex-traordinary maintenance. By doing so, Watly also creates jobs locally.

Transport Watly is made of pre-built macro components. All of the components are factory built and tested. A complete and fully operational Watly equipped with 2000 water tanks and 1000 battery powered LED lights can be delivered to any location of the world by deploying four 40 inches high cube containers (12,032 mm X 2.350 mm X 2,700 mm), each transportable by standard trucks.



Assembly All Watly's macro-components fit together automatically and only between four to eight working days are needed from receiving the components to having the machine fully operational. Watly needs to be placed upon a 40 x 20 square meters flat and solid surface without obstacles nearby that may cast shadows.

Specifications of Water Electricity Connectivity 4 thermal power engines in the configuration – 1 Master and 3 Slaves. Total thermal power 30 kilowatts. Dimensions of each power engine: 11m X 2.2m X 2.4m, Weight 2000 Kilograms.

All the components used in Watly's water purification system are certified according to NSF/ANSI 61-2010a and 62-2009 standards. Watly® removes: bacteria, viruses, desalination, fungi, parasites, cysts. >99.999999 (log 8)* Chemical reduction of chemical residues, pesticides, arsenic, benzene, alcohol, endocrine disrupting compounds, medical, residues and heavy metals, liquid contents of a latrine. *At sea level

Certificates CE mark. UL mark. Watly has successfully passed Philips Innovation Risk Assessment inlet and outlet water analysis have conducted by accredited laboratories. Watly's team is collaborating with TuV Rheinland to apply for a quality certification by TUV. Watly Factory is ISO 9001 and 14001 Certified/

Patents EP 1873843 A3 granted: filed in the name of Watly's CTO and co-founder, Stefano Buiani, related to the system for cooling photovoltaic panels operational temperature by means of a heat exchanger.

60822NL pending: related to an arch-shaped device for purifying soiled water, based on vapor distillation by means of a combination of solar thermal panels and photovoltaic panels.

Watly's R&D department is applying for a patent relative to a special tank that eliminates hydrocarbons, soaps and solvents by means of grapheme-based technologies. The tank does not require maintenance for +10 years operational lifespan.

Watly's R&D department is presenting a patent application relative to a vapor compression distillation unit with unprecedented level of efficiency and reliability.

Testing The first Watly prototype has been tested since July 2013, providing consistent data regarding reliability, efficiency and efficacy of the system. The second Watly prototype has been tested since March 2014, showing high levels of performance and no signs of mechanical failures or breakdowns. Both prototypes are still under testing in Watly's facility in Talmassons (UD), Italy. Several rounds of water analysis have been conducted by independent laboratories

Crowdfunding When engaging with the international crowdfunding community, we have in mind three realistic goals:

- Deliver to people that has already access to Watly, the maximum quantity of clean water and electricity as possible
- Change the life of the greatest number of people that still do not have access to Watly
- Set an ethical and attractive level of profits in order to sustain the company's growth in the long term

According to these goals, we have some requirements that need to be met: Cover the operational costs of both Lively Water and Lively Light. We rightly assume that in those scenarios where Watly is up and running, upfront initial investments are already funded (through big donations, sponsors, loans or private equity) but there is still the need for covering its operational costs. Recurrent donations or subsidies are the financial means to achieve this goal.

Finance the construction of the greatest number of Watlys around the world. There are about 1 billion people lacking access to clean water and 2 billions not having reliable access to electricity. One Watly can serve a community of 2000-4000 people but to create a real momentum, we need to install thousands of Watlys around the world. There are billions of people waiting for a solution such as Watly. If the international community believes in us and want to take part of this mission, together we will build as many Watlys that are needed to change the world.

Evolve and outperform the actual system, and create new amazing solutions. Our technological paradigm requires higher and higher levels of innovation and sophistication, so in the medium-long-term, we consider equity crowdfunding in view of opening to new shareholders the company finance strategic approach.

Sources: <https://watly.co/watly/>

<http://assets.inhabitat.com/wp-content/blogs.dir/1/files/2016/04/Watly-solar-powered-water-purification.jpg>

https://www.yahoo.com/tech/massive-solar-powered-computer-could-221152651.html?soc_src=mail&soc_trk=ma

Air Wells

Everywhere on Earth, even in deserts, the surrounding atmosphere contains at least some water. The quantity of water vapor contained within the air is commonly reported as a relative humidity, and this depends on temperature – warmer air can contain more water vapor than cooler air. When air is cooled to the dew point, it becomes saturated, and moisture will condense on a suitable surface. An air well is a structure or device that collects water by promoting the condensation of moisture from air.

Designs for air wells are many and varied as reflected in that at least five dozen patents have been issued. Active collectors collect water in the same way as a dehumidifier. Although the designs work well, they require an inexpensive source of electricity to be practical. New, innovative designs seek to minimize the energy requirements of active condensers or make use of renewable energy resources.

My compilation of “Space Travel Innovations” (see www.padrak.com/vesperman) includes this report from David Yurth:

In 1992, I watched a demonstration conducted by two technicians from Kiev, Ukraine’s I. N. Frantsevich Institute of Problems of Materials Sciences (IPMS) in the board room of the law firm of O’Melveny and Meiers in Newport Beach, California. They attached a piece of flat black material to a small clip suspended from a conventional chemistry lab test tube stand [single metal pole extending vertically from a cast iron base]. To the corners of this material they attached the leads from a conventional 9-volt battery, using small alligator clips, one attached at each corner. Within 20 seconds, the top surface of the tarot-card sized flat black card became covered with a layer of ice crystals. Within 30 seconds, a continuous cloud of frozen ice crystals [looking for all the world like the vapor which rolls out of a bucket of water when a piece of dry ice is dropped into it] began to pour off the upper surface of the suspended card and onto the top of the 20-foot long board room table. Within a minute, the cloud entirely covered the board table and was pouring off the edge of the table onto the laps of the people who were seated around the table watching this demonstration.

When the technician offered to allow someone to actually hold the ‘card’ in their hands, everyone who had seen a demonstration of the Peltier effect refused – in our materials science lexicon, Peltier materials get very cold on one surface but demonstrate compensating heat on the opposing side. So when the demonstrator disconnected the card and held it in his hand, everyone who thought they knew what was happening gasped. With a digital thermometer, the demonstrator measured the surface temperature of the opposing side of the card – it was 72 degrees F. The top surface of the card was -68 degrees F. It was extracting heat from the local address and

dissipating it non-locally in the presence of a very small activating DC voltage field with sufficient efficiency to freeze free-standing CO₂ from the atmosphere.

(End of excerpt)

It seems that this material could be used to extract abundant moisture from air with small amounts of electricity.

My website includes a link to my compilations of “102 Electrical Energy Innovations” and “Ball Lightning Fusion Reactors”. Some of them may be able to cheaply generate electricity for air wells. For example a doughnut-shaped fuel-less hydro-magnetic dynamo the size of a two-car garage apparently could cleanly and safely generate half the nameplate capacity of Hoover Dam’s 17 generators, 2080 megawatts, for maybe a tenth of the cost of Boulder City’s electricity.

Abundant, cheap, safe, reliable, and clean electricity could be a key to obtaining water supplies. A few other candidate generators are documented in my website’s “Space Travel Innovations” and “Gallery of Clean Energy Inventions”.

<http://rexresearch.com/airwell2a/adsorbairwl.htm>
www.rexresearch.com/theilow/theilow.htm
www.rexresearch.com/whisson/whisson.htm
www.rexresearch.com/parent/parent.htm
www.rexresearch.com/ellsworth/ellsworth.htm
www.rexresearch.com/airwell3/airwell3.htm
www.rexresearch.com/airwell2/airwell2.htm
www.rexresearch.com/airwells/airwells.htm

Hydrosonic Pump

The hydrosonic pump seems destined to become a billion-dollar invention with many applications involving heating, evaporating, separating or mixing liquids. It is really a zero-pressure boiler, not a pump. The inventor James Griggs has been calling it a pump so as to avoid entanglement with strict American Society of Mechanical Engineers boiler codes.

Mechanical input power rotates the shaft, and plain water is converted to steam without the need for hot surfaces and consequently without the buildup of scale. The process is essentially based on collapsing microscopic bubbles to momentarily create extremely high pressures and temperatures. This controlled cavitation generates shock waves. Thus another name for the device is shockwave power generator.

The hydrosonic pump works by taking a fluid, pure or impure, into the machine housing, where it is passed over the generator's spinning cylinder. The specific geometry of the holes in the cylinder, clearance between the cylinder, and the housing and rotational speed create pressure differences within the liquid where tiny bubbles form and collapse. These collapsing bubbles generate shock waves. The result is the conversion of mechanical energy into heat energy. The effect is immediate when the shaft rotates in contrast to boilers which often take hours to reach boiling temperatures.

In addition, there is an ultrasonic cleaning effect that occurs on the metal surfaces inside the hydrosonic pump as the shock waves are generated within narrow tolerances. This cleaning effect, in conjunction with the metal surfaces being cooler than the liquid, ensures scale-free heating.

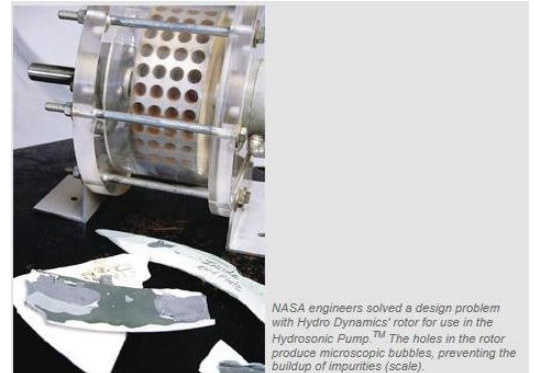
The energy conversion efficiency is around 130%. To prevent confusion, it should be clearly understood that the hydrosonic pump on the macro scale does *not* operate at high temperatures and pressures as is the case with nuclear or fossil-fueled boilers. The physics of the device is not fully understood.

One application is to use a windmill to turn the shaft. Out of the nozzle comes steam which drives a steam turbine to produce electricity. The steam then enters a condenser from which can be obtained potable water and hot water for space heating. For remote islands, for example, the hydrosonic pump would be very useful in its simultaneous generation of electricity and seawater desalination. The efficiencies of nuclear and fossil-fueled power plants could be increased by 3 to 5 percentage points.

As of May 1996, the inventor had 14 units actually installed and operating in Atlanta, Georgia. One application was for producing clean steam on demand for a commercial laundry. The customers included the Atlanta Police Department, a fire station, a dry cleaning plant, and a gymnasium. Interestingly, the hydrosonic pump was installed in the public buildings by the county engineer after evaluating the device. The buildings used the device mainly for heating purposes, and they had been running for more than a year. The customers have bills from their local electric utility company showing a year-on-year decrease in bills equivalent to 30 per cent.



The rotor inside the Hydrosonic Pump™ generates shock waves to provide the energy needed to heat various liquids, such as organic salt used by the petroleum industry.



NASA engineers solved a design problem with Hydro Dynamics' rotor for use in the Hydrosonic Pump.™ The holes in the rotor produce microscopic bubbles, preventing the buildup of impurities (scale).

Nevada has large underground reservoirs of useless mineralized water. The hydrosonic pump could be the centerpiece of a large-scale scheme to generate electricity, heat and potable water. The hydrosonic pump could also desalinate seawater for Mexico and California's coastal cities which would remove some of the demand for Colorado River water. The shafts of hydrosonic pumps could be rotated by electric motors powered with cheaply generated electricity in the same manner as air wells.

I was recently told on the telephone by inventor Maurice Bey that Griggs posed enough of a threat to the energy status quo that he was shut down by the US Government.

Maurice Bey has been researching the Schaeffer engine which apparently shares some similarities with the hydrosonic pump. See <http://www.rexresearch.com/schaeffe/schaeffer.htm>.

Michael Waters also apparently has been researching something similar but simpler than the Schaeffer engine.

<http://rexresearch.com/griggs/griggs.htm>

http://www.youtube.com/watch?v=yh_-DUKQ4Uw

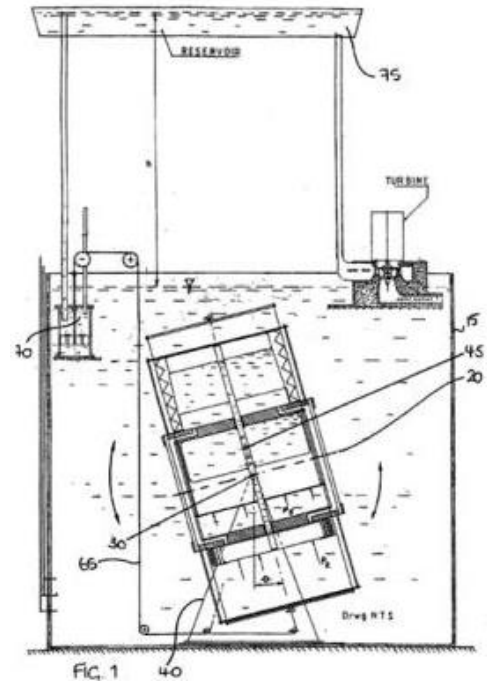
Spiteri Water Pump

An air-conditioner does not generate energy. It transfers thermal energy from a room into the outside air with greatly increased efficiency. When a body is submerged in water there is latent hydrostatic energy in place. The submerged Spiteri water pump efficiently converts this hydraulic energy into mechanical energy.

The Spiteri water pump (shown) comprises a housing containing a fluid. A pump motor is submerged within the fluid. The pump motor is pivotable within the housing about a fixed pivot point. A buoyant member is contained within the pump motor. A ballast member is contained within the pump motor. The ballast member contains a ballast tank. A transfer means is coupled to the buoyant member to transfer the upward movement of the buoyant member within the pump motor. And last, a pressure differential means is operable to move the ballast tank upwards within the pump motor.

This mechanical energy is then used to pump water uphill into a reservoir. A hydroelectric power system utilizes the reservoir's waterfall to generate cheap electricity without fuel nor pollution. A Spiteri water pump can be placed in any water body in the world to produce energy 24 hours a day, seven days a week.

The Spiteri water pump could be combined with the hydrosonic pump to pump desalinated seawater into onshore reservoirs and water tanks.

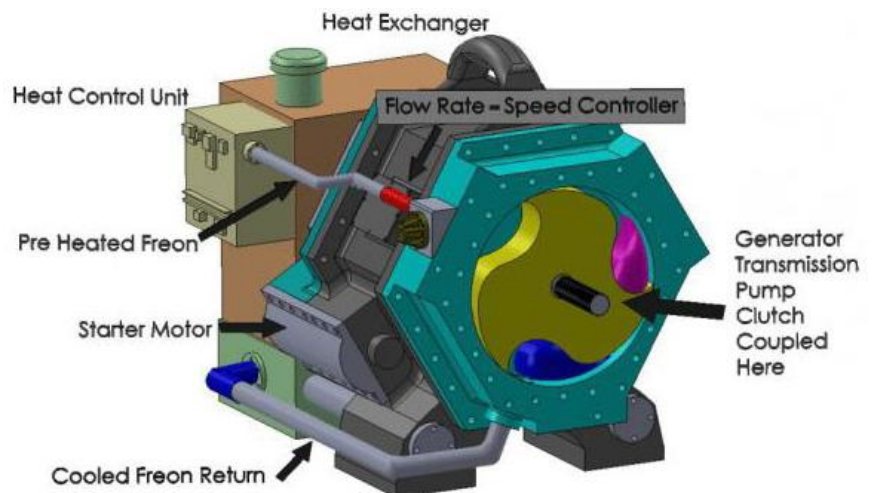


www.rexresearch.com/spiteri/spiteri.htm

Environmental Heat Engines

At least five different fuel-less environmental heat engines have been patented. These pollution-free engines absorb ambient heat to expand a working fluid such as Freon or ammonia and push pistons through sealed chambers – resulting in net rotary output power. When energy to make electricity is free or at least nearly free heat pumps can cheaply refrigerate the atmosphere and condense water from low humidity air – an air well.

The Nova phase change engine (shown) operates in reverse of a refrigerator. Heat from a low-temperature ($120^{\circ}\text{F} - 180^{\circ}\text{F}$) source expands environmentally safe Freon 502(a) into a gas. The expanding Freon is injected into the rotor section of the engine to turn the drive shaft. The gas loses its heat as it turns the rotor and returns to its liquid form as it escapes through the exhaust port. The rotor pushes the re-liquefied Freon out of the engine, past a back-pressure valve, and back into the reservoir, where it is recycled to be used over and over again.



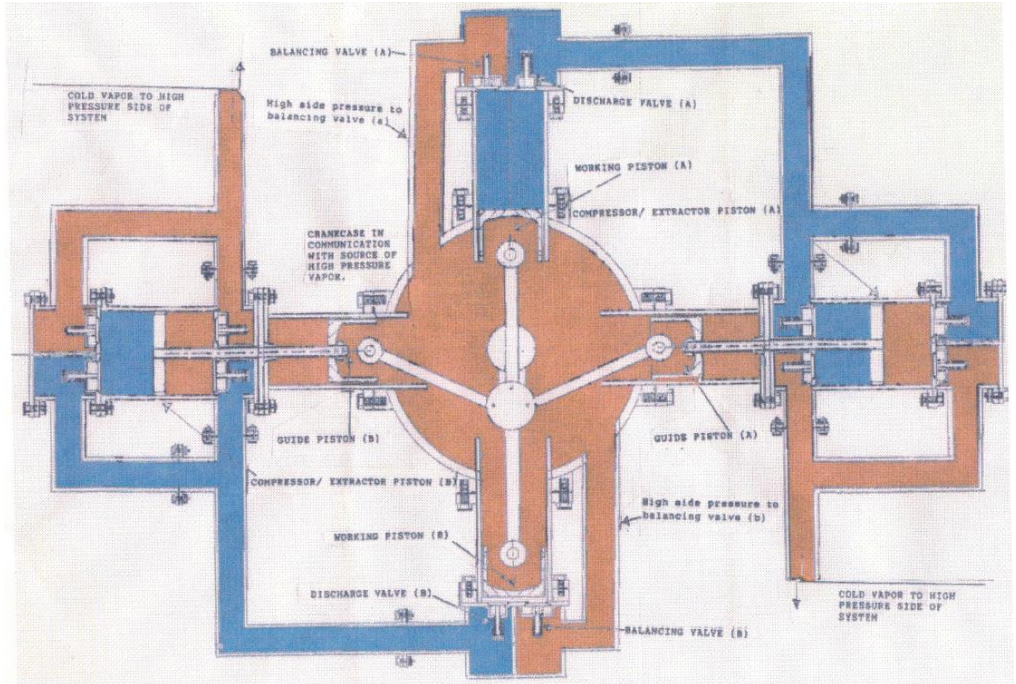
No fuel is burned, and there are no exhaust emissions. At the control panel, the starter motor is engaged to take the rotor up to the desired rotational rate.

The drive shaft can be coupled to generators, pumps, etc. The Nova phase change engine is scalable from 5 KW to 250 KW at a cost of \$.025 per kilowatt-hour. Small modules can be married together to provide incremental increases in horsepower as needed.

Ralph J. Lagow's "Method of Generating Power from a Vapor" has U.S. Patent No. 4,693,087.

George Wiseman has invented his Wise cycle environmental heat engine.

Robert Stewart developed his 'Stewart cycle' environmental heat engine (shown) for transportation vehicles, electricity generators, and large-scale water lifters. See US Patent 4,033,136 "Vapor Actuated Power Generating Device". Stewart claimed that his fuel-less engine could lift Colorado River water from below Hoover Dam back up into Lake Mead, thereby doubling Hoover Dam's output of electricity. He also proposed lifting water from the Columbia, Mississippi or Missouri rivers via a canal, generating electricity as the water flowed back downhill to the Colorado River.



Ken Rauen's Superclassical cycle environmental heat engine has U.S. Patent No. 6,698,200 for "Efficiency Thermodynamic Engine". Rauen also invented the Rauen cycle environmental heat engine.

Below is the text of Ken Rauen's December 5, 2013 email to Gary Vesperman. Rauen's Rauen cycle and Superclassical cycle engines expand working fluids with environmental heat to provide useful net mechanical power.

Hi Gary,

I like the air well idea. When energy to make electricity is free, heat pumps can refrigerate the atmosphere and condense water from low humidity air easily, an air well.

You may want to know that my current work in environmentally heated engines is two projects being promoted by Mark Goldes' group, Aesop Institute. See www.aesopinstitute.org. The home page says something about the piston engine, and the topics on top refer to the piston engine as one project and the turbine engine as the other project. In both cases, other men invented these engine concepts. I just took the ideas to a better design, understanding how they work. One patent application has been made for Wainwright's piston engine concept, and the Kondrashov turbine idea has spawned another related invention.

Our potential investors are not delivering much yet – survival money – and we are still looking for more support. Your exposure of this work could be helpful. Unlike other free energy possibilities, I can go "nose to nose" with any university physics professor about the science behind these projects. The science is solid. The technology is identified. It just needs resources to acquire facilities, tools, and materials.

Have Fun,

Ken Rauen

TWO ENGINES RAN WITHOUT FUEL – THREE MORE UNDERWAY! AESOP's 24/7/365 SOLAR POWERED FUEL-FREE ENGINES CAN RAPIDLY REPLACE FOSSIL FUELS!

(<https://www.linkedin.com/pulse/two-engines-ran-without-fuel-three-more-underway-aesops-mark-goldes>)

What appears to be by far the fastest path to replacement of fossil fuels has been born. It results from world-changing experiments by Chris Hunter. He first modified a Ford 4-cylinder engine and more recently a Kia 4-cylinder engine. Both engines then ran without fuel. AESOP's improved modifications of conventional engines will demonstrate manufacturers can readily produce millions of engines, of all sizes, capable of spinning generators and producing power 24/7/365 without fuel.

The Ford and Kia prototypes, reflecting a decade of research by Hunter, a brilliant inventor, feature closed systems. The engines are filled with propane as a refrigerant. The propane is not consumed. Once the engine is started propane continuously cycles through a phase change from a gas to a liquid.

The energy source for such engines is atmospheric heat. This huge untapped source of solar energy is present everywhere on earth. It far exceeds the total energy available from fossil fuels. Once spun up to speed, the engines create the necessary temperature differential internally. Frost forms on the exterior.

Hunter published plans for converting gasoline engines on the web. AESOP has reproduced them at aesopinstitute.org Click on NO FUEL PISTON ENGINES and scroll down to pages 11-15 for the details. See SECOND LAW SURPRISES under MORE on the website to understand more about the breakthrough science that makes such engines possible. A WHITE PAPER is available as well.

AESOP is converting both a Briggs & Stratton engine and a Mitsubishi V6 engine to demonstrate that engine manufacturers can quickly mass produce improved, proprietary versions, of 24/7 fuel-free engines worldwide. AESOP also is prototyping a fuel-free turbine.

Independent labs will verify and validate the new science. It opens a door to new 24/7 engine designs which need no propane and can be 3-D printed, generating millions of jobs and cheap green energy across the planet.

Companies developing intermittent wind and solar systems can instead utilize solar powered engines to provide 24/7/365 continuous power, both at the point of use and by assembling groups of multi-megawatt engines, at sub-stations, eliminating the need to extend grid power to wind and solar farms.

Imagine the implications! Engines that need no fuel and can run 24/7 while producing power. Hybrid cars (and electric cars with small engines added) can have unlimited range and sell electricity when suitably parked. Future vehicles might pay for themselves.

An alternative to the Standard Model of particle physics has been developed by Ken Rauen, AESOP's Chief Technical Officer, and the inventor of six of AESOP's fuel-free engines. Titled: An Introduction to Temporal Wave Mechanics (TWM) - copies are available upon request.

The task of moving this extremely urgent new science and technology forward has been a financial nightmare. AESOP (and myself) have been slandered by trolls, including numerous rants by an anonymous individual, posting some truth and numerous lies, errors and distortions. He uses several pseudonyms, posing as a fake 'Physics Board'. My Bio and AESOP's history are on the aesopinstitute.org website.

AESOP is assured of major funding – sufficient for 24/7 development and commercialization. However, very modest bridge funding is required to avoid interruption to this urgent work. Potential returns are staggering. To learn more, call me at 707 861-9070 or write: mark@aesopenergy.com

Sources: www.padrak.com/vesperman “Environmental Heat Engines” and “Gallery of Clean Energy Inventions”

Researchers Discover Massive Freshwater Reserves under the Ocean

We all know that you can't drink saltwater without removing the salt. In many parts of the world, clean fresh water is hard to come by. People drill deep wells, but at times, there is no water to be found. A group of researchers has discovered huge reserves of fresh water under the oceans.

It sounds strange to find freshwater under the salty ocean depths. However, researchers claim to have found 500,000 cubic kilometers of low-salinity water hidden beneath the seabed on the continental shelves around the globe.

The scientists claim that the fresh water has been discovered off Australia, China, North America, and South Africa. According to one of the researchers that discovered the fresh water, the volume of water found is a hundred times greater than the volume of water extracted from the sub-surface of the Earth since 1900.

Previously it was believed that freshwater aquifers under the seafloor only happened under special circumstances. The new research suggests that fresh water is common under the seafloor. The team says that these massive freshwater reserves were developed over hundreds of thousands of years when the average sea level was much lower than it is now. The freshwater was shielded from the salty ocean water by layers of clay and sediment.

<http://www.slashgear.com/researchers-discover-massive-freshwater-reserves-under-the-ocean-09308092/>

Primary Water

Conventional geological theory holds that underground water sources are the result of rain and melted snow soaking into the ground. November 2013 an energy researcher called to tell me about clean abundant 'primary water' in the Earth's mantle. I had never heard of primary water.

Primary water originates through chemical processes deep within the earth. Their existence is clearly shown by the vast clouds of water droplets that condense from the emitted water vapor during volcanic eruptions.

In subduction zones at the edges of tectonic plates iron oxide and other minerals are drawn far below the earth's surface where high pressures and temperatures prevail. As the mantle material melts the iron oxide undergoes a chemical metamorphosis in which its oxygen component becomes more reactive.

The mineral majorite is a type of garnet which normally occurs only at a depth of several hundred kilometers under very high pressures and temperatures. The majorite combines with the oxygen from iron oxide. The higher the pressure, the more oxygen can be stored by majorite.

Convection currents in the mantle carry the oxygen-laden majorite to the surface. Near the Earth's surface, without extremely high pressures and temperatures, the majorite decomposes – releasing oxygen. The earth constantly exudes hydrogen, which combines with this oxygen to form water.

If our planet did not have the ability to store oxygen in the deep reaches of its mantle there would probably be no life on its surface. Japanese laboratory experiments have shown that there may be up to five times more water deep underground than in all the oceans, lakes and rivers combined.

Research undertaken by Stephen Riess in 1934 showed enormous quantities of virgin water could be obtained from crystalline rocks. Riess was able to tap straight into formations of hard desert rock of the right composition and produce as much as 8,000 liters per minute.

Yellowstone National Park's Old Faithful geyser originates as primary water.

Near Damascus, Syria there is a spring which resembles an underground river several meters across which flows up and out of a limestone formation. Its total flow has averaged about 132,000 gallons per minute at least since Roman times.

Africa's Great Rift Valley has deep lakes which hold a quarter of the world's fresh water. Hydrothermal springs have been discovered in the last 20 years in the bottom of the lakes which testify to the origin of their water as primary water.

The solar power plant at Primm-Stateline taps into a huge underground river that runs through this area. The 3 towers sit directly over the river. The nearby golf course has 3 wells that tap into it. Each well pumps out 2000 gallons per minute.

Fifty miles northeast of Las Vegas the very short Muddy River flows through Moapa. The Moapa National Wildlife Refuge brochure says the water originates near Ely, flows south on the White River, and then percolates underground in a southerly direction for thousands of years. It finally emerges as five warm springs.

Anyway that is the conventional hydrological explanation. Now that I understand somewhat primary water, I would give more credence to primary water emerging from way down into the mantle as the source of the Muddy River. An awful lot of clear water has been flowing in the misnamed Muddy River for millennia. The photo below shows the Muddy River flowing out from below the Warm Springs Road bridge.

Locating sources of primary water promising enough to justify the expense of drilling usually starts with dowsing and observation of geological and biological indicators generally associated with sources of primary water. Ground electrical resistivity measuring methods often help pinpoint narrow, conductive fractures in the underlying bedrock which serve as conduits for water generated at depth.

I have the phone number of a mining engineer Pal Pauer who has a successful record of finding primary water sources around the world. He has successfully located and drilled over 75 primary water wells in arid East Africa which serve thousands of families. His methods include dowsing for underground water.



My guess is that the mountainous ridge to the north of Boulder City could be a source of primary water. Below is the text of a “Letter to the Editor” I had written and was published August 12, 2015 in the [Boulder City Review](http://bouldercityreview.com/sections/opinion/letters/letters-editor.html-74) weekly newspaper. The link is <http://bouldercityreview.com/sections/opinion/letters/letters-editor.html-74>.

Ridge may be hiding good source of water

My compilation of technical solutions to water shortages is linked at padrak.com/vesperman. Its "Primary Water" chapter suggests that the mountainous ridge along the north side of Boulder City may be hiding a source of abundant pure primary water.

Primary water originates from chemical processes many miles deep within the Earth's mantle. Japanese laboratory experiments have shown that there may be up to five times more primary water deep underground than in all the oceans, lakes and rivers combined.

Locating sources of primary water promising enough to justify the expense of drilling usually starts with dowsing and observing geological and biological indicators generally associated with sources of primary water. Ground electrical resistivity measuring methods often help pinpoint narrow, conductive fractures in the underlying bedrock that serve as conduits for water generated at depth.

A few dozen meters east of the upper end of the Bootleg Canyon zip line is where the ridge separates into reddish rock to the west and dark rock to the east. Mining engineer Pal Pauer has had a successful record of finding primary water sources around the world. He even has located and drilled over 75 primary water wells in arid East Africa that serve thousands of families. If he can confirm my suspicion, it would be easy to haul a water well drilling rig on the existing road to the top of the ridge.

Gary Vesperman

www.globalresourcealliance.org/

<http://cassiopaea.org/forum/index.php?topic=13528.0>

http://issuu.com/sciencetosage/docs/sustainable_ideas_kversion (Turn the pages of the magazine until the article titled “Deep Hydrology” appears.)

Water Purification with Electrical Coils

Larry Woods’ LinkedIn profile states: “I am driven toward the goal of free energy. I have the knowledge and ability to create it. If it takes power to operate we can provide that power without the need for input power. Our goal is to eliminate the use of fossil fuel, within the next 20 years.

LIMITLESS ENERGY TECHNOLOGIES is currently making molds for electrical coils. We now have proven designs for coils to be used worldwide for HHO production and ozone for water purification and (oddly enough) pest control.”

Larry Woods, Ph.D., Electrical Engineering, has also designed a ‘magnetic vortex drive engine’ for space travel. See “Space Travel Innovations” and “Gallery of Clean Energy Inventions” in padrak.com/vesperman or commutefaster.com/vesperman.html.

His fuel-less 5 kilowatts ‘magnetic drive generator’ was to be for sale in 2015.

In his April 5, 2016 email to Gary Vesperman Larry Woods wrote that his current research focus is plasma generators.

NanoCeram Water Purification Technology

NASA supported the development of NanoCeram water purification technology for purifying water in manned space vehicles. NanoCeram eliminates multiple contaminants, including disease-causing microbes such as cryptosporidium and *E. coli*, while still maintaining a usefully high flow rate.

NanoCeram activates when in contact with water, creating an electro-adsorptive charge field that, in addition to the media’s two-micron-wide pores, traps particles as the water is forced through. In a layer less than a millimeter thick, a bacterium would have to navigate through about 400 pores – called the ‘tortuous path’ – while eluding silver ions in the media that kill microbes.

https://spinoff.nasa.gov/Spinoff2013/cg_1.html

<http://www.okoh2o.com/>

Etheric Weather Engineering

Etheric weather engineering researchers have demonstrated many times that weather control boxes or precisely machined metal objects can bore holes in the ether and cause weather upsets and changes. James DeMeo's 'cloudbuster' (in the left photo) on the Arizona banks of the Colorado River in 1978 doubled rainfall.



(The following is a copy of the "Etheric Weather Engineering" chapter in Gary Vesperman's compilation of "Advanced Technologies for Foreign Resort Project" which is linked in <http://www.padrak.com/vesperman>.)

Etheric weather engineering is certainly one of the more spectacular products of the international 'underground' science network. Unbelievable as it may seem, what looks like an ordinary tin can or handleless frying pan slowly being turned by an electric motor, in less than a half-hour, can cause heavy rain within 10 miles under conditions of high barometric pressure. (I have a video which shows about 20 demonstrations of etheric rain making.) I personally have seen etheric weather engineering effects at least twice in Las Vegas and twice in the Midwest.

So what is the secret of this crazy thing called 'etheric weather engineering'? To begin understanding this most remarkable phenomenon, we first take a look at just what is the 'ether':

Sound comprises of oscillating waves traveling through water, air, and solid matter. Light propagates through space also as a wavelike phenomenon having frequency and wavelength. Over a century ago, some physicists postulated that light is a form of electromagnetism which travels as an oscillating wave through a medium they termed 'ether'. The famous Morley-Michelson experiment around that time determined that the speed of light is constant. So therefore, it was thought, there can not be an ether.

Subsequently, physics was led on a wild goose chase. For example, the mathematics of Einstein's famous theories of relativity are mostly based on the assumption that the speed of light is constant. Astronomers commonly believe that the Universe started with a big bang and is still expanding because the speed of light is thought to be constant.

It has been claimed that the physics of electromagnetism and gravity as presently taught in academia has over 20 serious flaws. Actual measurements with modern instruments have shown that the speed of light varies with both direction and time. (Morley and Michelson erred in measuring the speed of light with both interferometers in the horizontal plane. They should have instead placed one interferometer in the horizontal plane, i.e., orthogonal to gravity, and the other interferometer in the vertical plane, i.e., parallel to gravity.)

Actual measurements of the speed of light as it varies by as much as 5 miles per second over time show that the ether is not static but, as the earth travels through space, seems to surge and ebb with both time and orientation with respect to the stars.

Astronomers can precisely measure the speed of light with Jupiter's moons. Measurements beginning 1738 have shown that the speed of light since then has slowed down 7%! (See "The Speed of Light is Slowing Down!" in "Space Travel Innovations" www.padrak.com/vesperman.)

Contemporary physics does not answer some of the fundamental questions of magnetism and gravity. For example, just how do magnets attract and repel? What is gravity? How can magnets under specialized conditions produce anti-gravity? What is inertia?

The consensus of some physicists is that two basic changes need to be made to the theory of physics. The speed of light is no longer to be assumed constant. The other change is that admitting the existence of the ether helps to explain many physical phenomena not otherwise satisfactorily explainable by conventional mainstream physics. For example, some physicists are now claiming that the earth's relatively weak gravitational 'pull' is actually the ether pushing objects such as the moon, satellites, and people into the shadow formed by the Earth on the ether.

Etheric energy, also sometimes called 'zero point electromagnetic radiation' and 'vacuum field energy', is known as an energy that fills the fabric of all space. Technically, the etheric energy results from an electric flux which flows orthogonally to our perceived dimension or reality.

The energy density of the ether is essentially incomprehensible. The mass equivalence of etheric energy has been calculated by physicists to be on the order of 10^{95} grams per cubic centimeter using Einstein's famous equation $E = mc^2$. To put etheric energy density in perspective, Nobel Laureate Richard Feynman and one of Einstein's protégés, John Wheeler, have calculated that there is more than enough energy in the volume of an empty coffee cup to evaporate all the world's oceans! We fail to easily recognize this humongous energy field as it is analogous to trying to weigh a beaker of water deep underneath the ocean's surface.

Dan A. Davidson has published a book "Shape Power: A Treatise on How Form Converts Universal Aether into Electromagnetic and Gravitic Forces and Related Discoveries in Gravitational Physics" reporting on his many years of measuring and studying the effects of the geometry of objects on the ether. In his book he explains how geometric forms, for example the famous 'pyramid power', convert etheric energy into electromagnetic and gravitic forces.

Etheric weather engineering researchers not only claim but have demonstrated many times that precisely machined metal objects similar in shape to cones, tin cans, handle-less frying pans, etc., when slowly turned by an electric motor (but not simply rotated on the axis of their hollow interiors), bore holes in the ether and cause weather upsets and changes. Only by linking the enormously high energy density of the ether with etheric hole boring can the disproportionately immense leverage of small objects upon the weather be understood.

The foregoing is referred to as 'active' etheric weather engineering. There is also a 'passive' version which generally comprises of a box about two feet high, wide, and deep. The tops, bottoms, and sides are about an inch or so thick and comprise of a thick layer of electrical insulation sandwiched between two thin layers of an electrically conductive material such as aluminum foil. Pieces of a wrecked RV camper's foam shell sometimes have been used.

Along the four inside edges around the bottom of the box are four magnets. Each magnet is placed in the center of each inside edge. To make rain, the polarities of the magnets are set one way, and to cause fair weather, the magnets are reversed. (I have actually seen this demonstrated in the Midwest.)

On the center of the bottom of the box is set a truncated concrete cone about a foot high and a little over a half-foot in diameter. The concrete contains some special materials including mono-atomic gold and is sometimes wetted.

I stuck my head inside the box and could detect a faint mustiness. The experimenter thinks there is something like 20 megawatts of etheric power vertically streaming through the box.

The weather control box is termed 'passive' because it takes about a half-day for the weather to react in a large circle of several miles in radius as compared to the half-hour for several miles in radius of weather to react to the rotating metal objects. In the awesome demonstration of the weather control box I saw in the Midwest, an otherwise cloudless day went completely cloudy from horizon to horizon in about an hour, after a buildup of several hours in the morning. I could even see lines or bands in the clouds that were possibly caused by the horizontal aluminum sidings of the garage inside of which the weather control box was located. Then the magnets were reversed, and the clouds had dissipated by the end of the afternoon. I was overwhelmed by seeing, for the first time, jaw-dropping etheric weather engineering. It was simply magnificent.

It has been suggested that the precision of etheric weather engineering could possibly be increased by using both passive and active forms of etheric weather control in a mode of operation similar to alternately pressing the gas and brake pedals of a vehicle.

Some of America's Indian tribes were able to break up droughts by dancing counter-clockwise around a circle, or to stop rain by dancing clockwise around a circle. To illustrate, the summer of 1931 Nevada was suffering through a drought. An elderly Shoshone Indian, Wagon Jack, suggested to the tribal members living in the vicinity of Austin, Nevada that they devote some time to a rain dance. With considerable skepticism, Indians from all over central Nevada showed up beginning August 14 for continuous rain dancing plus of course feasting and political meetings. On August 19, the skies clouded over and rain began coming down in torrents. After four days of heavy rainfall, flooding caused extensive damage. (Nevada Historical Society)

I remember reading another story when during a severe two-year California drought during the mid-1970's, an environmental group in San Francisco just for fun decided to hold a rain dance in nearby Marin County. They had to cut it short because it started raining! Of course, I didn't understand then what was really happening and why.

Etheric weather engineering researcher Trevor James Constable has produced a video "Etheric Weather Engineering" on his weather engineering experiments. Thomas J. Brown has authored a book on etheric weather engineering titled "Loom of the Future: The Weather Engineering Work of Trevor James Constable".

It was reported in Brown's book that in September 1994, Hurricane Iniki was bearing down on Honolulu. Constable's ship happened to be located between the hurricane and Honolulu so he was able to divert Iniki. Unfortunately, the hurricane ended up damaging the island of Kauai instead.

Installing local etheric weather engineering capabilities, probably under contract to an etheric weather engineering researcher, should be a relatively trivial expense. One weather control machine or box should be able to cover the entire resort area. By being able to cause rain or sun on demand, the resort project could achieve a competitive advantage.

I do not know whether local weather control, set to sun, would be sufficient to break up a hurricane should one approach the resort complex. It is possible that weather control machines would have to be installed on ships or planes and located in the path of the hurricane such as happened with Iniki. Being able to break up or at least divert hurricanes should noticeably reduce insurance costs.

(End of excerpt)

To break the severe drought that is currently plaguing the Southwestern United States it appears to be a worthwhile low-tech experiment to hold a rain dance near Lake Mead. A guess is that it would require 50-100 volunteers to continuously dance counter-clockwise around a circle day and night for at least half a week. Other volunteers would be on standby to relieve dancers taking breaks.

If the rain dance does result in local rainfall, would the local disturbance cascade or propagate elsewhere within the drought region to eventually break up the area of high pressure stubbornly hanging over the Southwestern United States?

(Long email follows from James DeMeo)

From: "James DeMeo demeo@mind.net [OBRL-Quarterly]" <OBRL-Quarterly-noreply@yahoogroups.com>
To: #OBRL QUARTERLY <OBRL-Quarterly@yahoogroups.com>
Sent: Wednesday, March 30, 2016 8:09 PM
Subject: [OBRL-Quarterly] CORE Network Success - "Miracle March II" West Coast Rains & Snow -- Preliminary Report

Released: 27 March 2016

CORE Network Success – "Miracle March II" West Coast Rains & Snow Preliminary Report

Here I will detail some past and present efforts by the CORE Network USA, applying Wilhelm Reich's method of cloudbusting to end a most serious drought situation.

Background History – Severe Drought of the Late 1980s

Back in the late 1980s and early 1990s, California and the West suffered from a serious drought problem of many years duration. Several cloudbuster operators had tried to affect an end to that prior drought, working from isolated locations along the West Coast. The results from those efforts were often quite good, and constituted some of the only rains to enter California throughout the period from November 1990 through January 1991. However, the quantities and distribution of those rains were minimal and regionally isolated, and the drought persisted. By February 1991, with open discussions on the severity of the situation, a more comprehensive and organized plan was developed among skilled West Coast cloudbuster operators, following Reich's original theory and approach.

A series of coordinated operations was planned undertaken in both early and late February, at different West Coast locations, ranging from Southern Oregon south to San Diego, and from the Pacific Coast east into the Sierras. The new operational procedures involved significant dor-busting and rain-draws at the different locations, moving from the peripheral areas towards the core of the drought zone. This more organized method proved to be a major success, particularly the late February operations which were followed by a major atmospheric breakthrough, triggering copious rains across nearly all of California throughout the entire month of March. The newspapers at the time heralded those excellent rains, which went against the mainstream weather forecasts, as the "Miracle March". During that excellent rainy epoch, lakes and reservoirs filled, forest fires were extinguished, dry landscapes were replenished, and the air became clear, crisp and healthy.

That particular CORE-cloudbusting project was the first such major team effort using the cloudbusting methods of Reich at different locations, to occur since Reich's passing in 1957. It drove home the point that under such severe widespread drought conditions, coordinated operations from different locations worked far better than only uncoordinated, isolated and/or single-site efforts. That cooperative effort constituted the origins of the

CORE Network of cloudbuster operators adhering closely to Reich's original methods, a group which continued in similar work, on and off, over the subsequent years. A report on the 1991 operations leading to that "Miracle March" was later published in the *Journal of Orgonomy*, "CORE Report #26: California Drought of 1990-1991", V.26, No.1, p.49-71, 1992. A copy of that paper is available on the internet, here: <https://www.academia.edu/5781483/>

While the original bioenergetic reasons for that drought were never fully clarified, it did appear related to the expanded nature of a large dry zone and dor-layer known to exist over the open Pacific Ocean adjacent to Southern California and Baja Mexico. Another related possibility was a long-duration consequence from the April 1986 Chernobyl nuclear power plant accident, plus several West Coast underground atomic bomb tests at the Nevada Test Site, episodically throughout the 1980s and early 1990s. Those events were observed to trigger atmospheric oranur reactions with subsequent widespread atmospheric stagnation and drought conditions. Numerous reports on those atmospheric and also geophysical reactions to underground atomic bomb tests and nuclear power plant accidents were routinely reported in the journal *Pulse of the Planet*. <http://www.orgonelab.org/cart/xpulse.htm>

Development of the CORE Network USA

Following the cooperative 1990-1991 operations on the West Coast, the CORE Network was formed, and subsequently undertook additional major drought-breaking efforts. It has expanded to include serious workers in orgonomy both in the Central and Eastern USA. Its members have included natural scientists at the Ph.D.-level, with past or current university posts, several MDs, professional engineers, perceptive and long-time professional weather watchers, and students in training. It is a prerequisite that everyone have a good background knowledge of Reich's over-arching discoveries, a serious concern for a healthy environment, a good history of responsible work, and no 'playing around' to impress others. All adhere to Reich's original methods and approach, with no compromises on essentials.

CORE Net members take the view that *cloudbusting is not "weather modification"* in the sense of "do-make", or "forcing", but rather that we are *Nature's assistants, working to remove dor-stagnation obstacles that block natural atmospheric pulsation and rains*. A short statement on this essential difference between cloudbusting and mechanistic weather-modification, written in 1993, is given here: <http://www.orgonelab.org/cloudbustingisnot.htm>

CORE Network operators also give each other constructive critique, monitor CORE operations in progress within a rapid-notification network alerting others to new atmospheric developments, as well as potential hazards. Post-facto analysis and documentation of the results of operations is also undertaken. Review and oversight are as central to the CORE Net as are the actual operations, and it functions in a work-democratic manner. CORE Net members have been involved in successful overseas drought-breaking projects in the USA, Africa, Israel and Europe.

The Current West Coast USA Drought

What began in c.2010 as a serious drought across the Southern tier of US states, from Southern California through Arizona, New Mexico and Texas, slowly shifted north towards the West Coast region. Severe drought conditions thereafter enveloped the entire West Coast, starting earliest in California but gradually pushing north into Oregon and Washington. By this time, several of the California operators had retired from this work, with only one functioning station in Northern California, and another in Oregon. Efforts from those two stations produced good results with widespread rains over their particular regions, but drought conditions generally returned just as quickly. And there were very few of the big breakthrough rains as had been the case in March 1991. This was so, even though forecasters were constantly speaking about anticipated benefits from a Pacific El Niño which never materialized.

The cause of this drought appeared quite similar to that of the situation in 1990, being a combination of an expanded Pacific dor-layer and dry zone just off the coast of Southern California, along with a fairly recent serious nuclear power plant accident in March 2011 at Fukushima, Japan, with multiple massive radiation releases. North Korea also began a program of underground nuclear bomb tests as well, notably in 2009 and 2013. Downwind nuclear radiation effects from the Fukushima accident were recorded as distant as Hawaii and the West Coast of North America.

The central core of the drought was in Southern California, as revealed in various drought monitoring websites. This was too distant to be significantly influenced by cloudbusting efforts isolated in Northern California or Oregon. Also, the primary large cloudbuster once used at multiple locations in the successful 1991 operations had serious mechanical problems, making road-trips to new locations impossible. In spite of significant efforts by several well-connected and professional volunteers, fund-raising efforts to pay for repairs, upgrades and other necessities to bring the status of CORE Net equipment back to top levels were unsuccessful. Significant efforts were also made to solicit the interests and support of local and state government officials, and those in the various water-resource and irrigation bureaucracies. All these efforts failed, and our various outreach efforts were greeted with a loud silence. Wealthy ‘donor angels’ also could not be found. Only a few individuals without financial resources or abilities to assist with logistical necessities contacted us, which were greatly appreciated, even if nothing came from those contacts. Basically, we were on our own.

CORE Net Efforts of 2014-2015

The typical drought pattern of this period was, Pacific storms approached the West Coast, but drier conditions over Southern California caused them to deviate to the North-East, where they made landfall only in Washington State or British Columbia, Canada. Effective CORE Net cloudbusting operations have the ability to energize the Pacific storms as they approach the West Coast, and with the reduction of the coastal dor-barriers, they may naturally move onshore at more southerly latitudes.

This more natural pattern can then benefit the entire West Coast of North America, sometimes producing a ‘big result’ that ends or significantly reduces serious droughts with above-average rains. This was accomplished in the 1991 ‘Miracle March’ effort, and on a few other occasions thereafter, where a more natural pattern developed only days or a week after ambitious cloudbusting operations began. Such was the plan for the current drought, and CORE Net operators had reasonably good expectations they could produce a similar result once again, assuming our own needs for better equipment and assistance could be satisfied.

By the summer of 2014, the drought situation had rapidly deteriorated. CORE Net took on several new members in California, including south to San Diego. Efforts went forward to rebuild and repair existing equipment, and to build new cloudbuster apparatus. Lacking donors, the individual CORE operators dug into their own pockets to pay for considerable expenses, out of concerns to do something of help to nature and the community.

Over the 2014-2015 winter rainy season, new methods were tested out. Nobody had the ability to put large cloudbusting equipment on the road, for dor-busting operations in some of the driest places where the atmospheric blocking seemed the worst – such as in the Southern California Central Valley. But preliminary operations and continued repair and upgrading efforts went forward slowly, with optimism.

CORE Net also learned of another effort undertaken in the Southern California region near Bakersfield, by a team of novice cloudbuster operators who had little experience with the challenges posed by California droughts. Efforts towards contact and communications with this group, to bring them into the CORE Net for cooperative work and training, proved fruitless.

The winter season of 2014-2015 nevertheless ended with slightly improved rainfall and snowpack totals in the Pacific Northwest and parts of California, revealing an interesting pattern: *All locations with a cooperating CORE Net cloudbusting station experienced either above normal precipitation percentages, or amounts that were the highest for their particular region.* The Bakersfield team, due to its decision to "go it alone", by the weather data had little to show for their efforts.

CORE Net Efforts of 2015-2016 – Breakthrough!

Over summer 2015, further efforts were made for repairs and upgrading of CORE Net equipment. By October of 2015, a new round of CORE Net operations commenced, but with a significantly improved network and additional serious cloudbusting equipment. As in 1991, and in a preliminary manner in winter 2014-2015, operations were again possible from Oregon south to San Diego.

October-November operations were brief, and followed by regional rainfalls and some light snows here and there. A more concerted effort in December was followed by a significant temporary breakthrough, with excellent rains and heavy snow in Oregon, and Northern and Central California, notably in the high mountain areas. As previously witnessed, regions near to operating CORE Net stations had the highest rainfall or snowpack quantities. Snow accumulations around the higher-altitude Oregon and Shasta stations ranged up to 3.5 feet of accumulated depth by mid-January of 2016, the highest quantities witnessed in around 8 years. Newspapers also reported the heaviest snowfalls in five years in the mountains of Northern California. Lake Tahoe received an amazing 9.6 billion gallons of runoff rainwater in 24 hours. Lower elevations experienced excellent rainfalls across most of Central and Northern California, and much of Oregon and Washington. This early excellent result, stimulating a return of natural atmospheric-energetic pulsation and rains, was briefly described in a published report "Research Project: CORE: Western Drought Emergency " in the *OBRL Newsletter and Year-End Report #28*, for 2015 (p.36-37).
<http://www.orgonelab.org/OBRLNewsletter.htm>

The breakthrough rains and snow of late December and early January were to be exceeded over the following months. CORE Net was not working continuously over this full period, only at selected times, episodically, when natural rainfall patterns appeared to revert back to the older drought pattern.

Operations were never more than a few days work at any one location, but with coordinated patterns of usage at other stations, in a manner known from prior experiences to produce good results. For much of January, operations ended, in fact. Drought tendencies returned, and so by late February, more ambitious efforts were undertaken.

This latter set of late February and early March CORE Net operations was followed by the 2016 "Miracle March" rains currently celebrated in the newspapers. Billions of gallons of rainwater fell across Northern and Central California, lasting for 2 weeks. 35 billion gallons of water ran into Folsom Reservoir alone in 12 hours. Lake Shasta, California's largest reservoir is now filling so fast they are allowing excess water to drain away as downstream discharge, south into the Sacramento River.

Snowpacks in the California Sierras and Oregon ranges have been mostly excellent, above normal in Northern California, and the higher peaks were inundated with exceptional snowfalls guaranteed to keep the irrigation reservoirs full over the forthcoming natural summertime dry period.

Both of these two epochs of exceptionally good rains and snow followed specific sets of cloudbuster operations, taking down the dor-barriers to allow progressive pulses of Pacific Ocean storms to enter the West Coast. The most recent of these breakthroughs produced sequential storm pulsations moving east off the Pacific Ocean, each with a rainy-snowy epoch that only subsided in the last week, hopefully with more on the way. Overall this suggests a good natural pulsation may now be restored across a large portion of the drought region.

The newspapers once again herald the turn towards good rains and snow as another "Miracle March", even though the month was not quite finished at the time of publication.

<http://www.latimes.com/local/lanow/la-me-ln-california-snow-march-miracle-sierra-nevada-20160312-story.html>

This exceptional change in the weather was not specifically forecasted – only a general expectation of "El Niño's arrival" had been discussed by weather forecasters going back to 2014. They did not anticipate the recent weather change, though once it started, the forecaster's "now-casting" embraced the welcome changes. As before, the highest precipitation quantities continue to be generally observed near to each of the operating CORE Net stations. Precipitation quantities have increased, most noticeably in the Coastal Range, Sierras, Northern California and Oregon.

CORE Net operations continue, and we hope to see the water year finish with above-normal conditions across most of the entire West Coast. Unfortunately, there still are no experienced or cooperative cloudbuster operators in the worst-hit critical Southern California Central Valley region, which remains dry, and the entire CORE Net effort is proceeding on a shoe-string budget.

Going Forward...

This is merely a preliminary report, and a more detailed account is planned for a future date, with a more structured and objective analysis of these general observations, and a comprehensive analysis of official National Weather Service precipitation data. Meanwhile, *CORE Net is openly soliciting donations to defray the significant expenses the individual operators incurred in the way of equipment repairs and construction costs.* These collective expenses currently amount to around \$20,000. Those wishing to help can do so by making a donation to the non-profit Orgone Biophysical Research Laboratory, Inc., which has a PayPal donor page established for this purpose.

<http://www.orgonelab.org/donations.htm>

Donations are tax-deductible, and may also be sent by other methods.

Should any of our readers have the financial abilities to assist in funding a more ambitious effort across persisting extremely dry regions of the Southwestern USA, please get in touch. CORE Network is able to offer the services of its skilled operator-members in dry regions where drought has persisted, but the considerable expenses must always be covered.

Thank you for your interest, and support.

James DeMeo, PhD

Writing on behalf of the *CORE Network USA*

Related:

Storms replenish key reservoirs amid California drought

<http://news.yahoo.com/storms-replenish-key-reservoirs-amid-california-drought-195428759.html>

El Niño is rapidly filling California's once-dusty reservoirs, easing drought

<http://www.latimes.com/local/lanow/la-me-ln-how-el-nino-is-rapidly-filling-california-s-once-anemic-reservoirs-20160315-htmllstory.html>

California's Biggest Reservoirs Filling After Parade of Wet Storms

<http://ww2.kqed.org/news/2016/03/14/california-reservoir-levels-spring-2016>

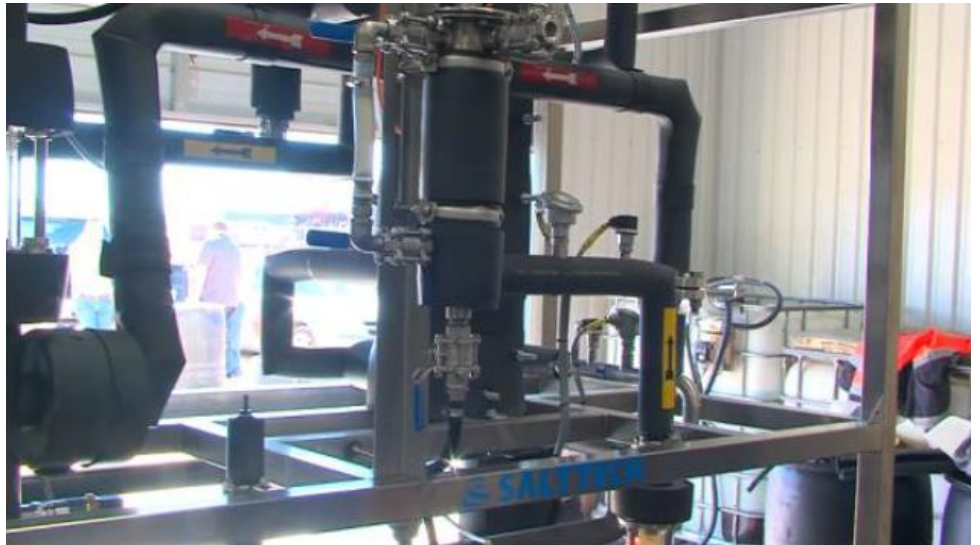
California's largest reservoir filling too fast thanks to El Nino, must release more water
<http://www.latimes.com/local/lanow/la-me-ln-california-reservoir-too-full-el-nino-20160325-story.html>

(End of email from James DeMeo)

Dynamic Vapor Recovery with Zero Discharge of Brine

Most ocean water desalination systems produce 35% fresh water at a cost of around \$8 per barrel. A 65% waste stream of highly concentrated brine ends up being discharged into the local waterways and oceans. Salttech's Dynamic Vapor Recovery (DyVaR) system can recover up to 97% clean water from any water containing dissolved salts and other solids and contaminants of up to and over 300,000 parts per million including ocean water. The remaining 3+% is discharged in the form of solid salts and minerals, thus no discharge or disposal problems. No filtration or chemicals are needed to clean the contaminated water.

Individual DyVaR units are non-metallic and will treat 50 liters/hour of saline water (or 7.5 barrels/day) – reaching capacities of up to 1,000's of barrels/day – at a cost of around \$1.50 to \$2 per barrel. The process is highly energy efficient and runs automatically 24/7 without fouling nor scaling.



Atmospheric Water Generation

An unlimited supply of fresh water in the form of water vapor is present in the atmosphere. The Atmospheric Water Generation (AWG) process comprises of adding post-processing units to existing air conditioners and refrigeration units to produce potable water. The AWG business uses refrigeration processes to cause water to condense onto cold surfaces. The water is collected and processed for human consumption. The AWG units are functionally identical to air conditioners, dehumidifiers, freezers, etc. These other systems that condense water vapor typically waste the collected water. The AWG process adds a post-processing unit to a typical air conditioner to produce clean water made acceptable for human consumption. The AWG process is better than other forms of producing potable water such as rivers, lakes, wells, processed sea water, etc.

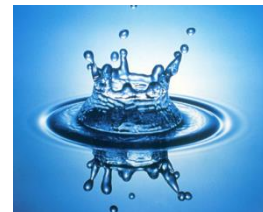


RIVERS IN THE SKY - LLC

22721 Canyon Lake Drive South
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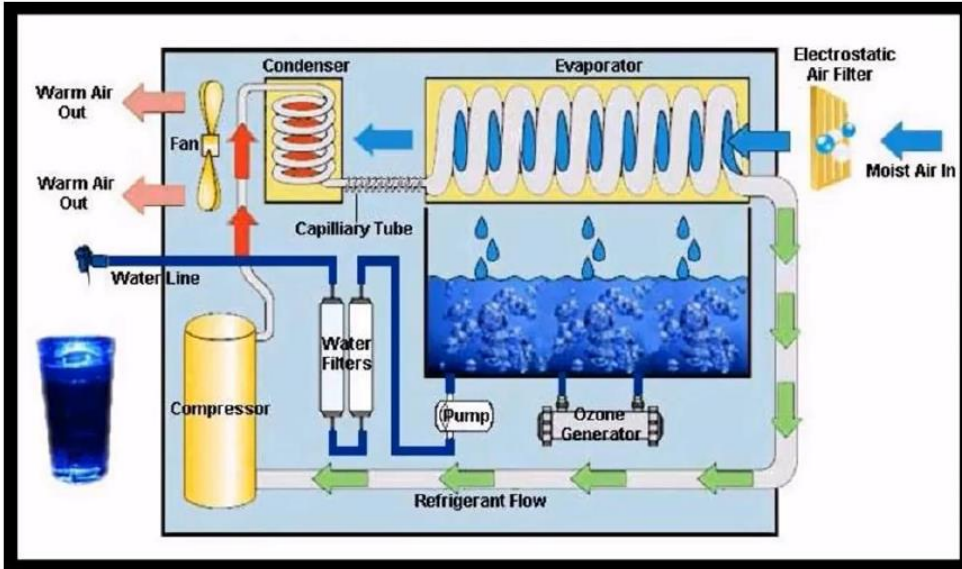


BUSINESS PLAN for LAS VEGAS

August 9, 2010

To : Chuck Sprague
From : Kent Bingham
Project : Rivers In The Sky in Las Vegas
Subject : 2nd Phase Business Plan Concepts

NOTE: This plan is written for a startup in Las Vegas. Other locations include all major cities, casinos, resorts, etc. in arid regions, with large air conditioning and refrigeration systems.



This letter follows our phone conference earlier today. We have agreed to form a company in Las Vegas that will open up vast new water resources for that community. The source of this water is the water vapor present in the atmosphere, as defined in the presentation sent to you last week concerning Atmospheric Water Generation (AWG).

CONCEPT

The atmosphere contains an unlimited supply of fresh water in the form of water vapor. In the past, mankind waited for this water vapor to condense as rain. Today, the AWG business uses refrigeration processes to cause water to condense onto cold surfaces.

The water is collected and processed for human consumption. The AWG business plan is based on sale of equipment to accomplish this. The cost to the consumer includes the initial cost of the equipment, plus the cost of the electric power to operate it.

The AWG units are functionally identical to air conditioners, dehumidifiers, freezers, etc. These other systems that condense water vapor typically waste the collected water. The AWG process adds a post processing unit to a typical air conditioner to produce a clean water made acceptable for human consumption.

The AWG process is much better than other forms of producing potable water such as rivers, lakes, wells, processed sea water, etc. The cost of producing AWG water eliminates the need for very expensive water treatment plants, and eliminates problems caused by chemical and biological contaminants by starting with water that has never touched the ground.

THE RIS PLAN

Our plan is to produce AWG quality water, but at a much reduced cost by eliminating the following cost factors:

- 1- Eliminate the cost of acquiring new air conditioning or other refrigerated machinery.
- 2- Eliminate the cost of power to produce the refrigeration.

How can this be accomplished? Simply by harvesting the condensed water from large commercial refrigeration systems that are presently operating for other reasons such as air conditioning, refrigeration, freezing food and water, etc.

THE POST PROCESSOR UNIT

Condensate water from an air conditioner contains airborne contaminants such as dust, pollen, and other items that get through their filter systems. When you buy water from a dispensing machine in front of your local supermarket, you are buying local tap water that has a POST PROCESSOR UNIT inside it.

The POST PROCESSOR functions are:

- 1- Activated Carbon Filter for chlorine and odors.
- 2- Micron Filter for dirt, rust, and other particles.
- 3- Reverse osmosis for salts and other impurities.
- 4- Post Carbon Filter improves taste of water.
- 5- Ultraviolet Light to ensure safe, high quality water.

The POST PROCESSOR described above is appropriate for processing chlorinated tap water from the Municipal Water Treatment Plant. For AWG water, the needs are slightly different. One of the largest AWG firms describes their POST PROCESSOR below.

AIR2WATER POST PROCESSORS - BASIC CONCEPT

<http://www.air2water.net/solutions.html>

Air2Water products are best described as atmospheric water generators (AWG). Air2Water AWG units use technology (developed and patented by Worldwide Water, Inc.) that extracts clean drinking water from the air.

1. The unit first pulls air through an electrostatic filter removing 93% of all air borne particles.
2. As it collects, water drops into a collection tray and immediately passes into Ultraviolet (UV) light, where the water stays in contact with UV rays killing germs and bacteria in the water.
3. The water is then pumped through a sediment screen into a water pump and through a series of solid carbon block, UF or no waste R/O water filters.
4. The water is then re-circulated through UV or treated by ozonation.
5. It is then circulated back into the dispensing tanks.
6. Finally, the water is chilled or heated and dispensed to the consumer.

MARKETS

Any location that has a large number of refrigeration devices presently operating would be a good location to establish an office with the following functions:

- 1- Sell RIS concept to owners of refrigeration systems, or better to create legislation requiring owners of refrigeration equipment to provide condensate holding tanks, and forbid them to dump condensate into the sewer system (if they are producing more than 1000 gallons per day).
- 2- Install holding tanks to collect the condensate water.
- 3- Collect and process the water at the central plant.
- 4- Bottle and distribute the water to local merchants.

OASIS Machine

The following first concept sketch was produced as a means of defining this device as we prepare for funding applications. Also to communicate with our several development teams relative to their supplying the Electric PowerUnit:

- GEMs
- David Yurth of Nova Institute Of Technology
- Bo Tomlyn

All other components for this OASIS machine are easily available open market, EXCEPT FOR THE POWER SUPPLY.

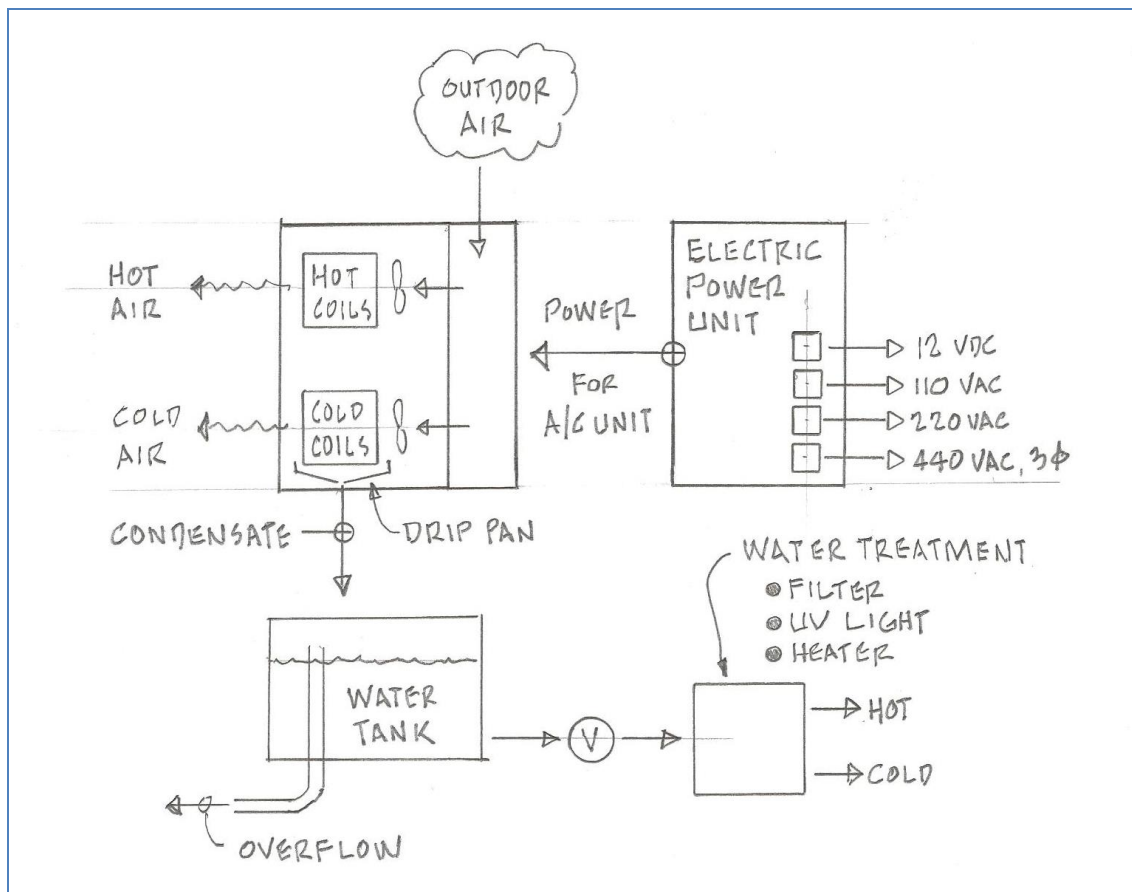
COMPONENTS

ELECTRIC POWER UNIT

- New technology, over unity device, requires no external power or fuel.
- Power output from 25 to 50 KW, voltages as noted.
- Internally powers pumps, fans, UV unit, refrigeration unit, lights.

ATMOSPHERIC WATER GENERATION (AWG) UNIT

- Atmospheric water is condensed out of the air by a cold surface that is colder than the dew point temperature. Any commercially available refrigeration or air conditioning unit could work in this application.
- Filters, fans, cold coils, and condensate collection pan.



WATER PROCESSING UNIT

- Agricultural water does not require processing. It flows directly from the condensate collection pan into ponds and reservoirs.
- Potable water is filtered and treated with UV light.
- Hot and cold water is produced for cooking, drinking, washing, etc.

REFRIGERATION UNIT

- The refrigeration cycle produces both hot and cold air.
- Cooling coils are used for condensing water from the atmosphere.
- Heating coils are used for heating homes, greenhouses, barns, etc.

BASIS FOR DESIGN

This unit is intended to open up for farming vast tracts of arid land that is now not being used due to lack of water. This unit runs continuously, for months and years without mechanical malfunction, and with minimum or no maintenance. Excess water will flow into ponds and reservoirs where fish and other native life forms will be nourished by this water.

The refrigeration unit would be like the old Servel Gas Flame unit, except that an electric heating element would be used to replace the gas flame. Bo Tomlyn's refrigeration unit would be used if it meets or exceeds this objective.

Bearings will be magnetic, and be designed for a minimum life of 25 years. All other components in this unit must be designed for maximum life.

This unit would be designed to create a farming operation that could be as small as one or two families, or as large as a small community. The objective is to create a continuous supply of fresh water free of contaminants found in ground water, at no cost to the consumers.

The economic validation for this system is that it permits the creation of a strong food production base and the small farm concept that has been proven historically as a firm foundation for community building. It is the best way to provide freedom and independence for those to whom it is made available. It would be community owned and operated, and paid for by a consumption tax as the community matures and gains in economic strength.

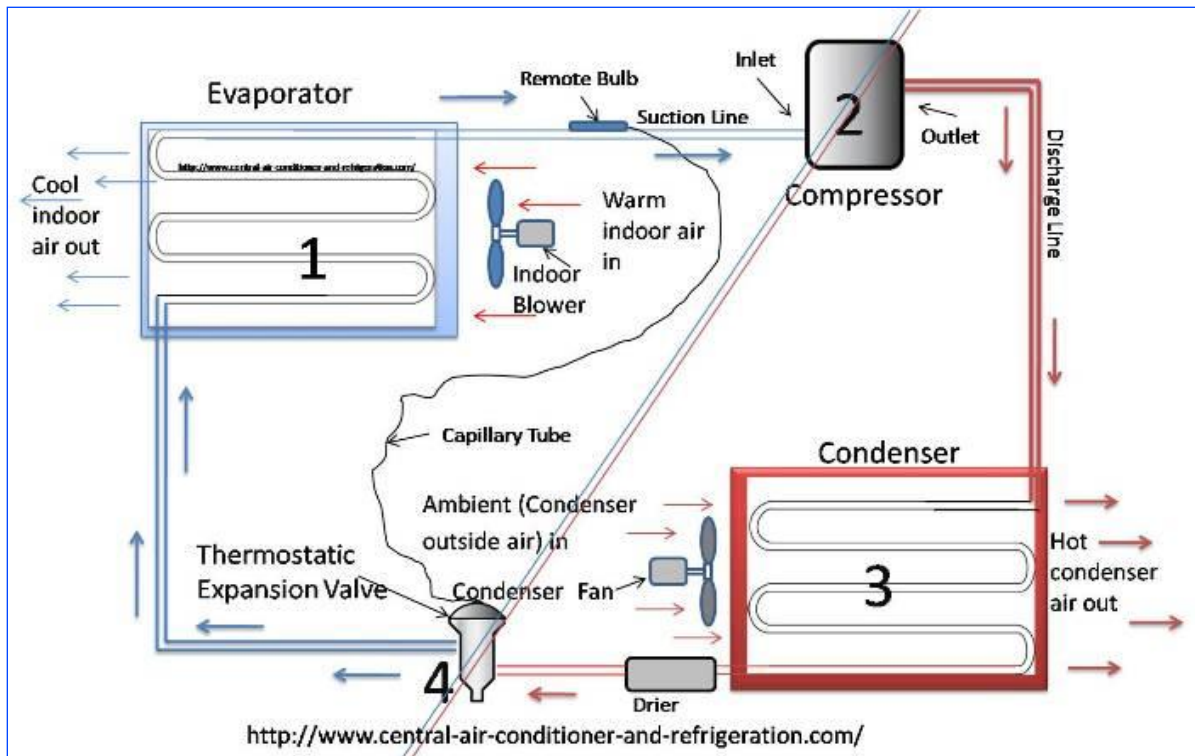
The wealth of the community would be based on the industry of the members of that community growing enough food for their own needs, and enough beyond that for export and sale to others.

Initial target markets are those areas of Earth where they cannot afford energy or fuel, and are living with inadequate supplies of food and water. This unit is the best way to regenerate healthy living as God intended it to be.

WATER PRODUCTION FROM THE ATMOSPHERE can be produced by flowing air over a surface that has a temperature below the dew point temperature of the air. By this method, an inexhaustible supply of water can be produced by an airship in flight, or by an OASIS unit operating in any arid region on Earth. The cooling coils on an air-conditioning system provide this water.

Heat pump and refrigeration cycle

From Wikipedia, the free encyclopedia: Thermodynamic heat pump cycles or refrigeration cycles are the conceptual and mathematical models for heat pumps and refrigerators. A heat pump is a machine or device that moves heat from one location (the 'source') at a lower temperature to another location (the 'sink' or 'heat sink') at a higher temperature using mechanical work or a high-temperature heat source.[1] Thus a heat pump may be thought of a "heater" if the objective is to warm the heat sink (as when warming the inside of a home on a cold day), or a "refrigerator" if the objective is to cool the heat source (as in the normal operation of a freezer). In either case, the operating principles are identical.[2] Heat is moved from a cold place to a warm place.



SOURCE: http://en.wikipedia.org/wiki/Heat_pump_and_refrigeration_cycle

Thermodynamic cycles

According to the second law of thermodynamics heat cannot spontaneously flow from a colder location to a hotter area; work is required to achieve this.[3] An air conditioner requires work to cool a living space, moving heat from the cooler interior (the heat source) to the warmer outdoors (the heat sink). Similarly, a refrigerator moves heat from inside the cold icebox (the heat source) to the warmer room-temperature air of the kitchen (the heat sink). The operating principle of the refrigeration cycle was described mathematically by Sadi Carnot in 1824 as a heat engine. A heat pump can be thought of as heat engine which is operating in reverse. Heat pump and refrigeration cycles can be classified as *vapor compression*, *vapor absorption*, *gas cycle*, or *Stirling cycle* types.

Vapor-Compression cycle

The vapor-compression cycle is used in most household refrigerators as well as in many large commercial and industrial refrigeration systems. Figure 1 provides a schematic diagram of the components of a typical vapour-compression refrigeration system.

The thermodynamics of the cycle can be analyzed on a diagram as shown below in Figure 2. In this cycle, a circulating refrigerant such as Freon enters the compressor as a vapor. The vapor is compressed at constant entropy and exits the compressor superheated. The superheated vapor travels through the condenser which first cools and removes the superheat and then condenses the vapor into a liquid by removing additional heat at constant pressure and temperature. The liquid refrigerant goes through the expansion valve (also called a throttle valve) where its pressure abruptly decreases, causing flash evaporation and auto-refrigeration of, typically, less than half of the liquid.

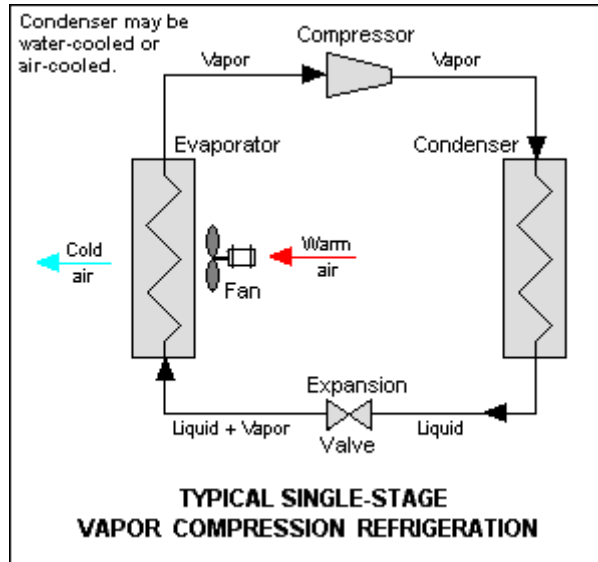


Figure 1. Vapor compression refrigeration

Gas cycle

When the working fluid is a gas that is compressed and expanded but does not change phase, the refrigeration cycle is called a *gas cycle*. Air is most often this working fluid. As there is no condensation and evaporation intended in a gas cycle, components corresponding to the condenser and evaporator in a vapor compression cycle are the hot and cold gas-to-gas heat exchangers in gas cycles.

The gas cycle is less efficient than the vapor compression cycle because the gas cycle works on the reverse Brayton cycle instead of the reverse Rankine cycle. As such the working fluid does not receive and reject heat at constant temperature. In the gas cycle, the refrigeration effect is equal to the product of the specific heat of the gas and the rise in temperature of the gas in the low temperature side. Therefore, for the same cooling load, a gas refrigeration cycle will require a large mass flow rate and would be bulky.

Because of their lower efficiency and larger bulk, *air cycle* coolers are not often applied in terrestrial refrigeration. The air cycle machine is very common, however, on gas turbine-powered jet airliners since compressed air is readily available from the engines' compressor sections. These jet aircraft's cooling and ventilation units also serve the purpose of pressurizing the aircraft cabin.

That results in a mixture of liquid and vapor at a lower temperature and pressure. The cold liquid-vapor mixture then travels through the evaporator coil or tubes and is completely vaporized by cooling the warm air (from the space being refrigerated) being blown by a fan across the evaporator coil or tubes. The resulting refrigerant vapor returns to the compressor inlet to complete the thermodynamic cycle.

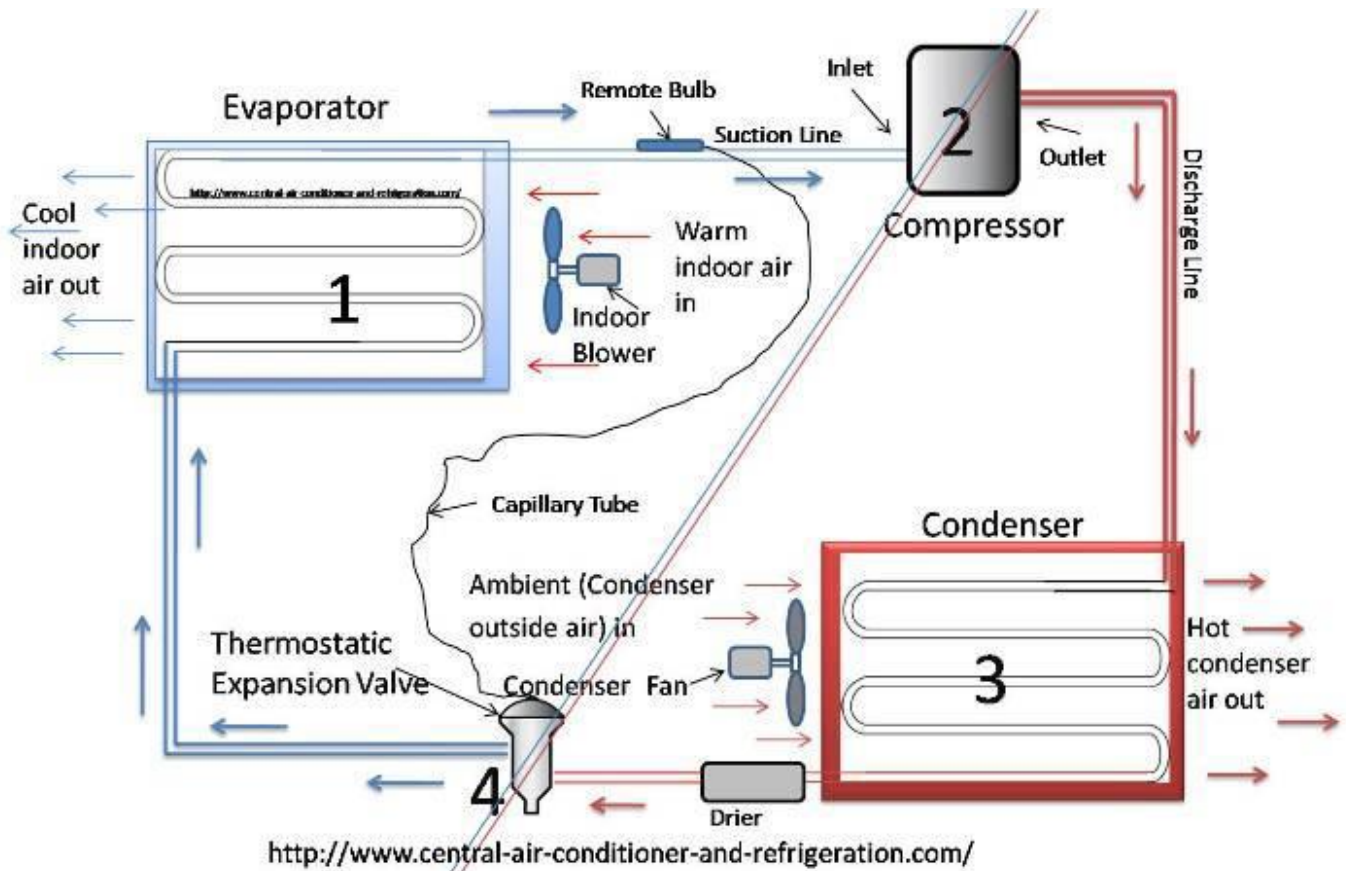


Figure 2. Temperature–Entropy diagram

The above discussion is based on the ideal vapor-compression refrigeration cycle, and does not take into account real-world effects like frictional pressure drop in the system, slight thermodynamic irreversibility during the compression of the refrigerant vapor, or non-ideal gas behavior (if any).

More information about the design and performance of vapor-compression refrigeration systems is available in the classic "Perry's Chemical Engineers' Handbook".

Vapor absorption cycle

Main article: Absorption refrigerator

In the early years of the twentieth century, the vapor absorption cycle using water-ammonia systems was popular and widely used but, after the development of the vapor compression cycle, it lost much of its importance because of its low coefficient of performance (about one fifth of that of the vapor compression cycle). Nowadays, the vapor absorption cycle is used only where waste heat is available or where heat is derived from solar collectors.

The absorption cycle is similar to the compression cycle, except for the method of raising the pressure of the refrigerant vapor. In the absorption system, the compressor is replaced by an absorber which dissolves the refrigerant in a suitable liquid, a liquid pump which raises the pressure and a generator which, on heat addition, drives off the refrigerant vapor from the high-pressure liquid. Some work is required by the liquid pump but, for a given quantity of refrigerant, it is much smaller than needed by the compressor in the vapor compression cycle. In an absorption refrigerator, a suitable combination of refrigerant and absorbent is used. The most common combinations are ammonia (refrigerant) and water (absorbent), and water (refrigerant) and lithium bromide (absorbent).

Stirling cycle

Main article: Stirling cycle

The Stirling cycle heat engine can be driven in reverse, using a mechanical energy input to drive heat transfer in a reversed direction (i.e. a heat pump, or refrigerator). There are several design configurations for such devices that can be built. Several such setups require rotary or sliding seals, which can introduce difficult tradeoffs between frictional losses and refrigerant leakage.

The Free Piston Stirling Cooler (FPSC) is an elegant, completely sealed heat transfer system that has only two moving parts (a piston and a displacer), and uses helium as the working fluid. The piston is typically driven by an oscillating magnetic field that is the source of the power needed to drive the refrigeration cycle. The magnetic drive allows the piston to be driven without requiring any seals, gaskets, O-rings, or other compromises to the hermetically sealed system. Claimed advantages for the system include environmental friendliness, cooling capacity, light weight, compact size, precise controllability, and high efficiency.

The FPSC was invented in 1964 by William Beale, a professor of Mechanical Engineering at Ohio University in Athens, Ohio. He founded and continues to be associated with Sunpower, Inc., which specializes primarily in researching and developing FPSC systems for a wide variety of military, aerospace, industrial, and commercial applications. Sunpower also makes cryocoolers and special pulse tube coolers capable of reaching below 40°K (around -390°F, or -230°C). A FPSC cooler made by Sunpower was used by NASA to cool instrumentation in satellites.

Since 2002, another leading supplier of FPSC technology has been the Twinbird Company in Japan, which also markets a broad line of household appliances. Both Sunpower and Twinbird appear to work in collaboration with Global Cooling NV, which is located in the Netherlands, but has a research center in Athens, Ohio.

For several years starting around 2004, the Coleman Company sold a version of the Twinbird "SC-C925 Portable Freezer Cooler 25L" under its own brand name. But it has since discontinued offering the product – in spite of favorable customer reviews on Amazon. The portable cooler can be operated more than a day – maintaining sub-freezing temperatures while powered only by an automotive battery. This cooler is still being manufactured and distributed worldwide, with Global Cooling now coordinating distribution to North America and Europe. Other variants offered by Twinbird include a portable deep freezer (to -80°C), collapsible coolers, and a special model for transporting blood and vaccine.

In addition to the technical information available on the websites referenced above, a step-by-step photographic teardown of the Coleman (Twinbird) FPSC cooler is viewable online.

Kent Bingham's technical solution to California's potentially catastrophic drought includes the above “Rivers in the Sky” (truncated) and the "OASIS Machine". Kent Bingham was the chief engineer of at least two of the Las Vegas Strip's famous attractions including Treasure Island's sinking pirate ship and the Rio's Carnival Ride. He also was the Chief Structural Engineer for Disney Corporation's EPCOT. Kent's resume is at <http://www.smartskyways.com/corporate/management/resumes/KentBingham.htm>.

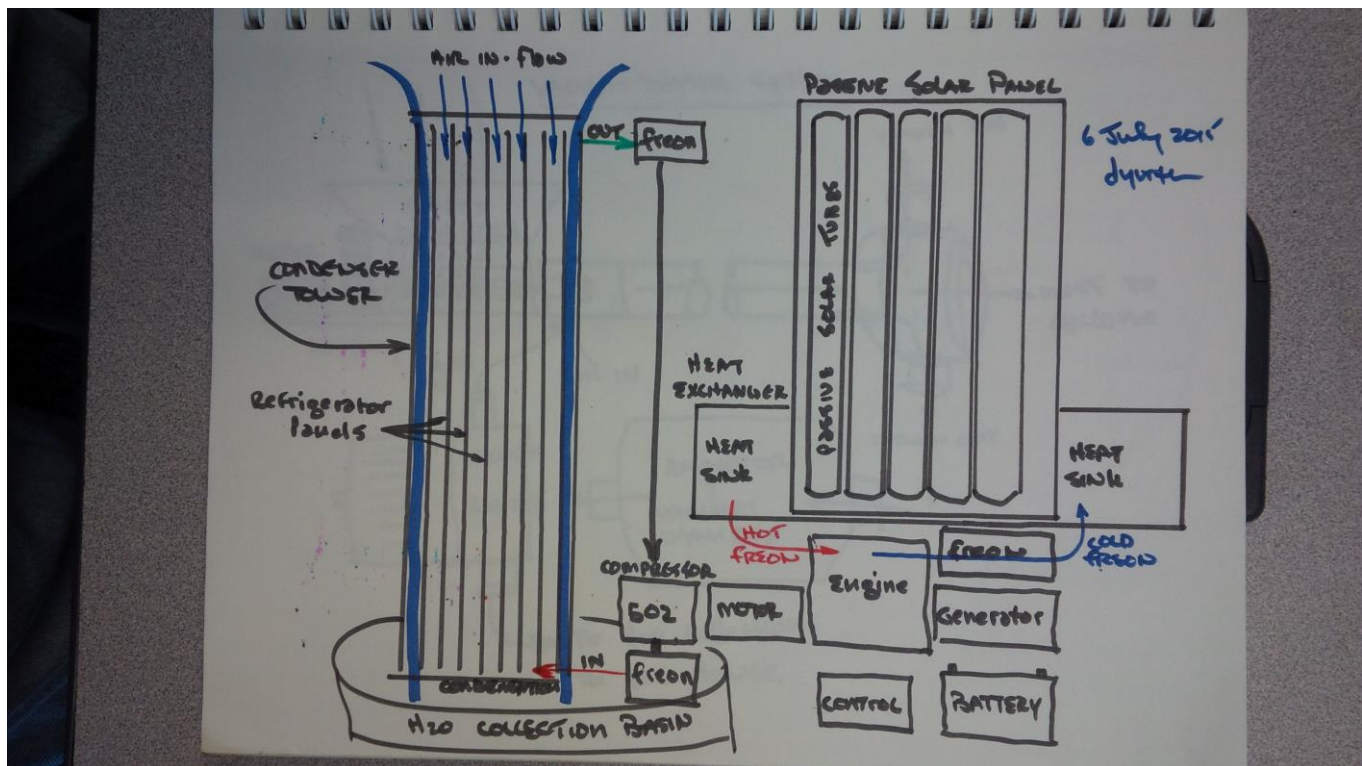
(Email follows from David G. Yurth)

From: David G. Yurth <davidyurth@comcast.net>
To: 'Kent Bingham' <kent@entenginc.com>
Cc: 'Gary Vesperman' <garyvesperman@yahoo.com>
Sent: Saturday, March 12, 2016 10:31 AM

Subject: RE: Efficiency of water electrolysis doubled

Good morning, Kent -

I sent this bunny picture to you for a couple of reasons. I understand completely what you are attempting to accomplish with your OASIS machine, and you have seen my comments regarding energy efficiencies and other considerations. This unit is designed for the same purpose as the one you are trying to produce. What distinguishes this design is that in addition to being fully transportable, it is totally self-sufficient.



The concept works like this:

- Thin sheets of stainless steel are married to each other after being ‘dimpled’ to allow a phase change cooling gas to circulate between the panels. The sheets are 4’ x 8’ in size. The panels are equipped with an inlet and outlet aperture, which connects each panel to a manifold that supplies the Freon 502(a) coolant from the compressor.
- The assembly of panels is contained in an insulated vertical box. The box has an induction fan at the top, powered by current supplied by PV panels situated within the rig. The PV panels are connected to batteries – their purpose is to supply low voltage DC current to drive the stepper motors which power the fans and support the instrumentation and internet linkage during remote operation.
- Air is drawn down through the top, past the surface of the sandwiched panels. As the hot air comes in contact with surface of the panels, the coolant which is circulating inside each panel absorbs the heat and causes the ambient humidity to condense on the surfaces. Condense water drips down the side of the panels and collects in the reservoir which is positioned at the bottom of the condenser panel array. This much is pretty standard stuff.

Your problem is that you can’t figure out how to drive the Freon through the condenser panels using off-the-shelf technologies. Solar panels and battery banks can perform that function reasonably well – the problem with PV panels is that they are expensive and relatively inefficient. They only work when the sun is shining and in climates where cloudy days are few and far between. This system uses another solution.

- Passive solar panels of the most recent design convert radiant heat from the infrared band of the visible light spectrum into usable thermal values – they work on sunny and cloudy days alike, even in climates where clouds cover the sky and outside temperatures are below freezing. They are much less expensive than PV panels and far more robust.
- An array of passive solar panels is situated on an inclined plane to face the sun, and periodically redirected using a simple optical sensor panel attached to a gimbal setup, so that the angle of inclination between the panel and the source of radiant heat is always less than 5% from dead center. This increases thermal conversion rates by more than 50% across a typical 12-hour day.
- The solar array is connected to a thermal mass – heavy slag encapsulated in oil in a well-insulated container – equipped with a high efficiency thermal exchange unit.
- The heat exchangers embedded in the thermal mass are connected to a closed-loop Freon engine – we designed it and own the IP. As long as the temperature of the thermal mass exceeds 120⁰ F, the Freon engine will generate more than enough electrical power to drive the compressor unit, position the rotating base to face the sunshine, pump the water through filters after it condenses in the holding tank, operate the computer links and whatever other instrumentation functions may be required.
- It will be possible in some instances to position the condenser array next to a suitable low temperature geothermal source – there are more than 82,000 catalogued locations in the US alone. Where this is possible, the passive solar array can be supplanted by a thermal exchange unit designed to capture heat from the geothermal source.

Our calculations tell us that a water condensation unit of this design, equipped with (10) such panels and our Nova phase change engine, will produce up to 100 gallons per day when situated in temperate zones with ambient humidity exceeding 11%. We estimate the cost of such a unit to be less than \$25,000, fully functional and deliverable. While you're waiting for someone to figure out how to develop a self-sustaining engine to drive the OASIS unit, this one can be built today using almost all off-the-shelf components. The Nova phase change engine (see above) can be fabricated quickly and inexpensively – it only has one moving part.

FYI

Dave Yurth

Hydrogen Production

From: Kent Bingham [mailto:kent@entenginc.com]

Sent: Friday, March 11, 2016 10:12 PM

To: 'Eugene Bergmann'; 'Moray King'; 'Bruce Peret'; 'Rainer Huck'

Cc: 'Doug Ivanovich'; Ed Grimm; 'David G. Yurth'; reinhold@synergyii.com; 'Michael Sean Brown'; 'Adam Krim'; zubinart@gmail.com; sweepinfo@gmail.com; lloydgoff@hotmail.com; 'Leah Grant'

Subject: RE: Efficiency of water electrolysis doubled

Hi All,

I greatly appreciate your recent emails dealing with water as an energy source. I have delayed responding to your emails as I was involved in writing a brief 2-page article on the OASIS Machine. See enclosure Water-Energy Miracle.pdf. (Reproduced below)

This paper was requested by my associate Doug Ivanovich, founder and CEO of www.worldpeaceone.com . Doug has a global stage and has requested this paper to present to possible investors. A more detailed description of the OM is enclosed as OASIS MACHINE TECHNOLOGY-2.pdf. (Reproduced below)

Our present focus for R&D centers around the need for greater efficiency with our water splitters. Ed Grimm has defined our needed HHO production rate as:

For starters on the micro-generation what is needed is a system that can produce 20 liters per minute with under 1 KW of input power.

I'm submitting this to all who have the capability of finding an existing unit or of developing a new version of this unit. Recent work at MIT and Stanford has been directed at this problem, with some good results.

Several forms of nano carbon have been the topics of much interest: Carbon nanotubes – See “Article: Nanoparticle coated electrodes and carbon nanotechnology”

http://peswiki.com/index.php/Article:Nanoparticle_coated_electrodes_and_carbon_nanotechnology.

This article is from 2008. There surely must be more recent info on this topic.

I hope to continue this discussion with all of you so that we can join forces to create this special OM appliance.

Cheers,

Kent Bingham

PS – For anyone wanting to dig deeper into this project, I have many other documents to define our OASIS VILLAGES, our food production ideas, and many other related topics.

From: Eugene Bergmann [mailto:eugene.bergmann@gmail.com]

Sent: Friday, March 11, 2016 1:14 PM

To: Moray King; Kent Bingham; Bruce Peret; Rainer Huck

Subject: Efficiency of water electrolysis doubled

I was intrigued with this article about the improvement in just hydrogen production

Gene

>>>>>>>>>>>>

Posted: Mar 10, 2016 <http://www.nanowerk.com/nanotechnology-news/newsid=42831.php>

[Efficiency of water electrolysis doubled](#)

alt="A copper layer below the surface provides the platinum catalyst with a doubled activity" border=0 v:shapes="_x0000_s1026">(Nanowerk News)

Water electrolysis has not yet established itself as a method for the production of hydrogen. Too much energy is lost in the process. With a trick researchers of the Technical University of Munich (TUM), the Ruhr University Bochum and Leiden University have now doubled the efficiency of the reaction (*Nature Communications*, "Making the hydrogen evolution reaction in polymer electrolyte membrane electrolyzers even faster").

Yet wind turbines have to be switched off when there is too much energy in the grid. Alternatively excess energy could drive the splitting of water into hydrogen and oxygen. But so far, hydrogen is industrially produced mainly from natural gas, although this releases large amounts of the greenhouse gas carbon dioxide.

But the process is still cheaper than the electrolysis of water.

Typically, platinum is applied as catalyst, in order to accelerate the conversion of water to hydrogen and oxygen. For the reaction to be as efficient as possible, intermediates must not adhere too strongly or too weakly at the catalyst surface.

A copper layer below the surface provides the platinum catalyst with a doubled activity and a longer service life.

(Image: Federico Calle Vallejo / Univ. Leiden)

Traditional electrodes bind intermediates too strongly

The team headed by Prof. Aliaksandr Bandarenka from the Department of Physics of Energy Conversion and Storage at TUM and Prof. Wolfgang Schuhmann from the Center for Electrochemical Sciences in Bochum have calculated how strongly intermediates must adhere to the electrodes, in order to most efficiently facilitate the reaction. Their analysis revealed that traditional electrodes from platinum, rhodium and palladium bind the intermediates a bit too strongly.

Thus the researchers modified the properties of the platinum catalyst surface by applying a layer of copper atoms. With this additional layer, the system generated twice the amount of hydrogen than with a pure platinum electrode; but only if the researchers applied the copper layer directly under the top layer of the platinum atoms. The group observed another useful side effect: The copper layer extended the service life of the electrodes, for example by rendering them more corrosion-resistant.

Water electrolysis could be powered by surplus electricity

Only four per cent of all hydrogen produced worldwide is the result of water electrolysis. As the electrodes used in the process are not efficient enough, large-scale application is not profitable. “To date, hydrogen has been mainly obtained from fossil fuels, with large CO₂ volumes being released in the process,” says Wolfgang Schuhmann. “If we succeeded in obtaining hydrogen by using electrolysis instead, it would be a huge step towards climate-friendly energy conversion. For this purpose, we could utilize surplus electricity, for example generated by wind power.”

“In addition, the research on this reaction allows us to test how well we can design catalyst surfaces by precisely positioning different metal atoms,” adds Aliaksandr Bandarenka. “A knowledge many other catalytic processes might benefit from.”

Water-Energy Miracle

Project – 2016 – Bingham Labs March 11, 2016

Subject – OASIS SYSTEMS DEVELOPMENT

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OASIS TECH

WATER-ENERGY MIRACLE

HOW would you like to have an appliance in your home that provided the following:

- A. Off the grid electricity to power your home 24/7 at zero cents per KWH.
- B. Full time HV/AC (heating, ventilating, and air conditioning).
- C. A continuous, unlimited supply of fresh water, free of all contaminants.

This paper is presented to inform you that we now have all of the information and components with which to build such an appliance. First, a brief presentation to explain this device:

1. **The energy of the future will be provided primarily from the combustion of water.** Here is a picture of tap water being sprayed into the plasma arc of a sparkplug. See <https://www.youtube.com/watch?v=EUBf93ISqT4> . This same phenomenon is found in nature as thunder and lightning.



2. In addition to our ability to directly burn water in a plasma energy field, we can cost effectively convert (by several means) liquid water into a gas known as HHO or Brown’s Gas. See <https://www.youtube.com/watch?v=m2wG90QIZSU>. This gas is perfectly combustibile and can create extremely high temperatures.

3. The above 2 examples have been combined in the past by Stanley Meyer – https://www.youtube.com/watch?v=4zMpM-jAnFs&ebc=ANyPxKrHm_-HSNeQPKfE6CK-qdF-kEC3xBjhK0OstDxMRy-6DvgNUkj3g6nkeAtUMvV0tij7dC. Meyer demonstrated a water fueled car, and thereby **gave us the knowledge to run all manner of internal combustion engines on water based fuel.** Others like Walter Jenkins have expanded and improved on this technology. See <http://www.h4gas.com/> .

Using the above information, we can build a power supply to provide **a continuous supply of electrical energy using water as fuel.**

THE OASIS MACHINE

The primary functions of an Oasis Machine are to provide water and energy as needed to produce food. We propose that a portable standby generator is the ideal source of the electricity. Typical generators available from many sources globally have built in internal combustion engines (ICE) that can be easily modified to run on water fuel as defined above.

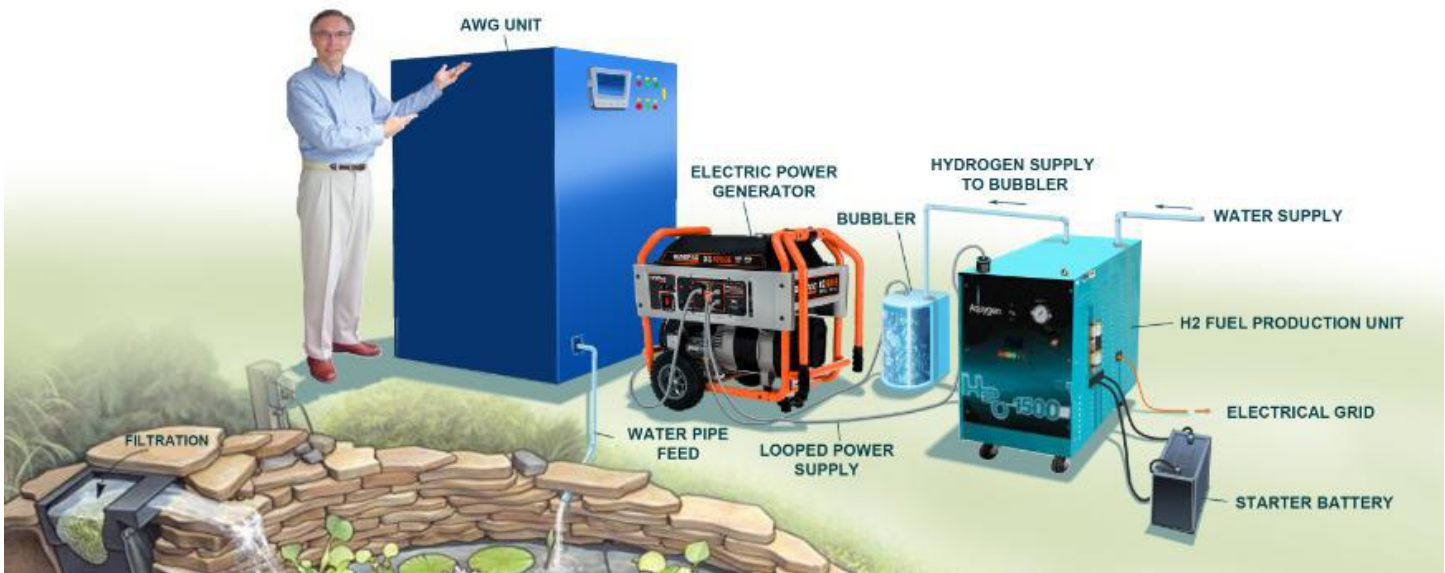
All refrigeration equipment (air conditioners, dehumidifiers, heat pumps, freezers, refrigerators, etc.) have 2 heat exchange coils, one hot and the other cold. The cold coil condenses water from air. A new industry has evolved known as Atmospheric Water Generation, or AWG.

By connecting an AWG machine to an electric generator fueled by water, you have thereby created a very low cost water supply. You have thereby completed the ABC functions noted at the top of this page for the appliance. This appliance is perhaps the most important tool developed in the past century for improving the quality of life for all mankind. It's the best thing developed since indoor plumbing!

Much information is available about water as an energy source. Perhaps the most concise presentation is found in the following article:

- “The History and Future of Brown’s Gas” by Hurtak, from an article in Nexus. Scroll down under free articles and you can download the piece on Brown's Gas.
https://www.nexusmagazine.com/articles/cat_view/31-browse-all-free-articles

OASIS MACHINE CONSTRUCTION



The Oasis Machine is built completely with off the shelf components. The only component that for the moment needs continuing R&D to improve its efficiency is the water splitter that converts liquid water to a fuel.

PROGRESS REPORT

We have been building prototype OASIS MACHINES since 10/30/2014, over 15 months, with several build teams participating by collaboration. Our Chief Engineer is Helmut Eduard “Ed” Grimm. He is a former NASA engineer, and a principal in Infinity Industrial Controls in Clearwater, Florida. He was a founder of Global Hydrogen and a partner of Denny Klein. We could not have a better person involved in developing this technology.

Of necessity, Ed has not been able to devote full time to this project. However, he has been able within his group of associates to achieve all of our objectives. Ed has several prototypes running, and will soon deliver to us a progress report for presentation to others.

The easy part of this project is to produce a generator running on water fuel. The hard part has been to get it to auto-run. We have been able to accomplish this.

THE LARGER PLAN

Our original objective in developing the Oasis Machine was the production free energy. Now the global need for fresh water has gained equal importance. Beginning with demonstrations to California farmers, we intend to self-fund through purchase orders. We will then expand into major food production which will launch a parallel program that we have named OASIS VILLAGES.

These villages will be patterned after Disney concepts and will result in sustainable communities all over the world, and will launch the long anticipated 'hydrogen economy'.

OASIS Machine Business Plan and Technology

Project – 2015 SPECIAL PROJECTS - OASIS March 11, 2016

Subject – OASIS MACHINE – BP & TECHNOLOGY

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OASIS MACHINE

BUSINESS PLAN & TECHNOLOGY

Project Summary for Bingham Labs DBA OASIS TECHNOLOGIES

April, 2015

Contact Kent Bingham

(818) 635-1020

kent@eei.nu

SPECIAL PREVIEW

Kent Bingham interview – Published on Oct 31, 2014

This Week in Free Energy™ Disney Imagineer talks about his water and energy generation tech.

See https://www.youtube.com/watch?v=Xq_zPzUnDNY for interview. Kent's interview runs from 14:40 thru 49:16.

For feature article, see http://peswiki.com/index.php/Directory:Oasis_Machine and

<http://freeenergynews.com/ThisWeekinFreeEnergy/2014/10/30/>

1. Mission and Vision Statement:

To establish a research laboratory that will produce advanced critical technologies for water, energy and transportation. These critical infrastructure technologies are starting a mega-shift in the ways we will live.

2. Describe Project Goals and Objectives

Project Goal: A research project will be developed over the next twelve months designed by Kent Bingham who will provide the R&D for an Atmospheric Water Generator with power generation based on splitting water into hydrogen and oxygen.

Our Objective: To ride the wave of public opinion to provide a new source of energy to assist with global warming by reducing our dependence on fossil fuels. Global warming, carbon dioxide pollution, air quality concerns – all are factors driving the development of new energy systems.

Wind and solar are temporary patches that cannot compete with Tesla technologies, hydrogen based new fuels, and several other devices now under development. Of the several new free energy devices now being developed like cold fusion, QEG (quantum electromagnetic generator), MEG (motionless electromagnetic generator), we have selected the one device that can be most readily available to all of the people on earth as a source of water, electricity, and food. That device is an internal combustion engine running on HHO gas produced by splitting water on demand.

Our prototypes will demonstrate the following:

- Water can be produced from air, in unlimited amounts, and continuously.
- Internal combustion engines will run on HHO gas with minimum modification for timing, the same as they now run on natural gas, CNG, and propane.
- By a simple arrangement of off-the-shelf common components available from several manufacturers, the OASIS machine can achieve over unity operation (i.e., produces more energy than it consumes).

3. The Business Model

OASIS TECHNOLOGIES (OT) will open source its research to stimulate this industry. We will select properly qualified existing companies and provide technical support to them as they assemble and test OASIS machines. OT will pay for the components. Upon successful completion of the prototype, we will follow one of two options:

- The selected company will (with our blessings) decide to continue on its own without our participation, in which event OT will keep the prototype which we have paid for.
- The selected company will form a new division within its existing business structure. We will negotiate a position within that new company for a 20 to 40 percent ownership. We will then participate in sales and product development as the selected company expands to meet production needs.

This company will be similar to the automotive industry where no one company owns the IP, competition is welcomed, and the best product in terms of quality, affordability, and usefulness will make the most sales. Our model is to start small and grow through collaboration with other companies in the field.

All of the technologies that we are using have been known for over 100 years, but by a carefully orchestrated program by those opposed to new energy systems, most of these technologies have been falsely misdirected so that the public is held in ignorance of the true potential of hydrogen and water as the free energy source of the future.

4. Background of the Company as Developer:

What qualifies our team to build the OASIS machine? – I have spent more than 40 years in designing and building prototypical one-of-a-kind devices for entertainment and transportation systems. I personally worked for Disney Imagineering as Structural Engineer in charge of the EPCOT project. After Disney, we were responsible for the safe and reliable development of Earthquake and King Kong at Universal Hollywood. We did similar work in Las Vegas on the Treasure Island Pirate Ship Show, the Bellagio “O” Show, Mardi Gras in the Sky at the Rio, and the Las Vegas Monorail, to name a few. All of these projects worked very well on opening day, and for many years after. Earthquake in Hollywood is still running 27 years after opening.

We are presently using water splitting to create hydrogen in a manufacturing company to fuel trolleys. I founded the company and up until April 2015 was the principal stockholder. I sold a portion of my stock to create a fund with which to build OASIS machines. See www.tig-m.com.

5. Product Description (Technology)

The first of our prototypes will be an Atmospheric Water Generator (AWG). This is a new technology that pulls water vapor out of the air and collects it as stored water. Only 1/7 of the water vapor that circles the earth is estimated to fall as rain accounting for all rain, water rights, rivers, aquifers and lakes. Water vapor closest to earth is available to be collected via new AWG technology. Think of what this could do for humanity.

Our intended use is to open up vast tracts of arid land for farming that is now not being used due to lack of water. This unit will run continuously, for months and years without mechanical malfunction, and with minimum or no maintenance. It can be scaled to produce from 1,000 to 100,000 gallons or more of water per day. Our production units can also generate their own electricity for off grid locations. Excess water will flow into ponds and reservoirs where fish and other native life forms will be nourished by this water.

The key to our technology

- **Our success** was guaranteed when we found ways to connect off-the-shelf components of proven reliability to create our OASIS machines.
- **Our success** was guaranteed when we chose a technology based on hydrogen as a fuel to drive our machines.
- **Our success** was guaranteed when we chose a device that has been demonstrated time and again to work, that was so successful that it became the main target of the oil industry to prevent its ever seeing the light of day. That machine is an internal combustion engine running on hydrogen.

There are many ways to use hydrogen as fuel.

- You can use HHO gas down the carburetor.
- You can use special spark plugs that burn H₂O in an electric arc, and you can use a combination of these methods.
- You can use all manner of methods to split water including catalysts, electrolysis, and resonant frequencies of the water molecule as demonstrated by Keely and Stanley Meyer, Ed Grimm, Denny Klein, Bob Boyce, John Kanzius, and many others. Witness the progress made recently at MIT and Stanford.
- Our approach is to build the best of these systems, arrive at the best methods, and finalize our products based on our findings.

In fact, an emerging industry of many companies is concentrating on devices generating more energy than consumed. This **over-unity** method is the key to our technology.

Set Up alliances with other companies that can collaborate

As we move forward with announcing our intentions through various media events, we are finding many individuals and groups who have been working with HHO gas, hydrogen in other forms, and those who have successfully been able to operate over-unity devices like cars running on water, and devices that demonstrate 'free energy'.

These people are willing to collaborate with us, and lend us their experience. This seems to be a shifting of consciousness toward freeing ourselves from the use of fossil fuels. We are also contacting companies that we have worked with in the past on entertainment projects, as they are eminently well qualified to build our OASIS machines.

6. The Market Potential:

- **Size of the market:** Energy markets are customarily measured in the trillions and constantly absorb innovation
- **Job Creation:** It is far too early to estimate this number, but every \$1 Billion in sales is 20,000 jobs.
- **Competition:** There are dozens of companies working in the 'energy gain field' and hundreds of companies working on hydrogen energy. They have associations and regular conferences. We are in the early years of a mega-shift in our energy infrastructure and it will attract thousands of companies.
- **Strategy:** Get our share of this industry by building a reputation for research and development.
- **Market uses:**
 - farming
 - drought reduction for cities
 - residential

- disaster relief
- resorts
- new construction
- electric power and water in remote areas

7. Describing the oasis configuration features

The OASIS MACHINE is a very simple device built by assembling the 5 off-the-shelf components shown in the sketch to the right:

1. A STARTER BATTERY
2. H₂ FUEL PRODUCTION UNIT
3. BUBBLER or back-flash preventer
4. ELECTRIC POWER GENERATOR
5. AWG UNIT

Specifications for the Mock Up

Here is a definition of all of the components needed to build a prototype device that will produce water from air at a nominal low cost. Our ultimate objective is to build a machine that will run continuously with no need to pay for energy or fuel. Currently the cost of operating an AWG is holding back the technology. The "Proof-of-Concept model is to demonstrate that costs can be lowered by producing cheaper electricity to operate it. This initial device will produce 300 liters per day. The selected components will work, but we may need to change manufacturers before we put everything together. This is not a problem, because all of the main components have several alternative vendors.



The main components are as follows:

- **THE STARTER BATTERY** is a common lead-acid battery such as you would find in a typical automobile.
- **THE FUEL PRODUCTION UNIT** will take in water and produce a gaseous fuel in the form of HHO gas or H₂ gas. The favorite is the "HYDROGEN REACTOR" which produces H₂ gas. See www.solarhydrogentrends.com Alternatives are HHO gas production units from several vendors.
- **THE BUBBLER** is a simple back-flash preventer.
- **THE ELECTRIC POWER GENERATOR** will run on a gaseous fuel. It is readily available from GENERAC and is designed to run on natural gas. Alternatives are generators produced by Onan, Honda, Briggs and Stratton, Predator, and many others.
- **THE AWG UNIT** is powered by item 4 above, and condenses water from the atmosphere, and processes it into potable water. The water from the atmosphere is unlimited and is identical to rain. This unit is a Rankine Cycle refrigeration unit which produces both heat and cold. It can cool a building in summer and heat it in winter. It comes by many names, all of which are based on the Rankine cycle:
 - Heat pump
 - Air conditioner
 - Dehumidifier

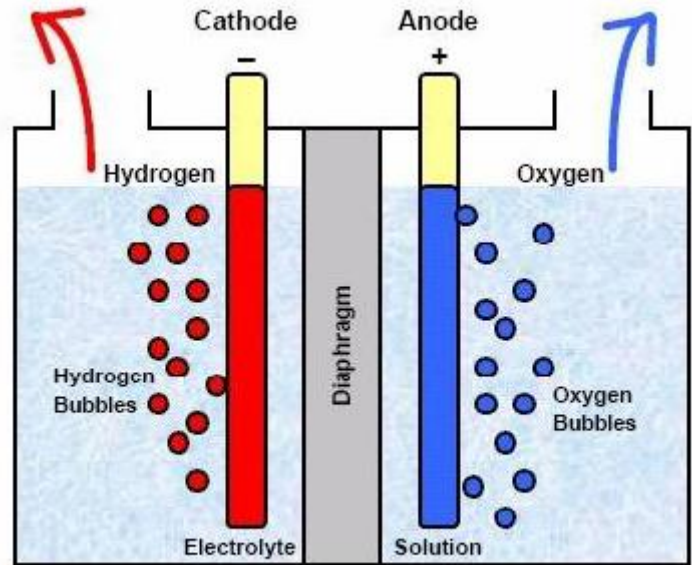
DETAILS ON THE FUEL PRODUCTION UNIT

The unsolved problem until now

Electrolysis is centuries-old. It was discovered more than 200 years ago by a surgeon named Anthony Carlisle and a scientist named William Nicholson.

Electrolysis is the process of using electricity to 'slice' water molecules, separating hydrogen and oxygen. . There has been a great deal of research during the past 10 years to improve the rate of production of HHO gas, and to reduce the energy needed per cubic foot of gas. We have done extensive research into this topic and intend to use the best available technology for this unit.

We recently were made aware of a new invention that produces hydrogen gas at a remarkable rate, with high efficiency, and results in extremely high Co-efficiency-Of-Performance (COP) (energy out divided by energy in) when burned. The device is a HYDROGEN REACTOR. See the website at www.solarhydrogentrends.com for further information. We can use either HHO gas or hydrogen gas in the OASIS machine.



Standard Electrolysis

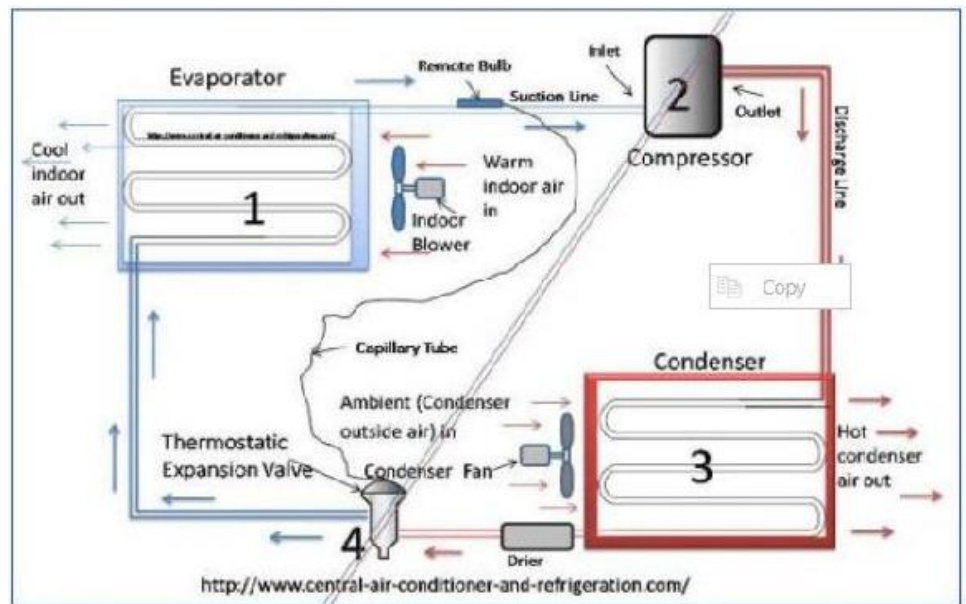
DETAILS on THE ATMOSPHERIC WATER GENERATION (AWG) UNIT

The device shown on the right is a typical refrigeration unit as used in air conditioners, dehumidifiers, refrigerators, freezers, and in our OASIS machine.

A. Atmospheric water is condensed out of the air by a cold surface that is colder than the dew point temperature.

B. Filters, fans, cold coils, and condensate collection pan.

C. Agricultural water does not require processing. It flows directly from the condensate collection pan into ponds and reservoirs.



SPECIAL FEATURES

- Potable water is filtered and treated with UV light.
- Hot and cold water is produced for cooking, drinking, washing, etc.
- The refrigeration cycle produces both hot and cold air.
- Cooling coils are used for condensing water from the atmosphere.
- Heating coils are used for heating homes, greenhouses, barns, etc.

8. Over-Unity Features of the OASIS Machine

LOOPING

THE KEY TO REDUCING ENERGY COSTS FOR WATER PRODUCTION IS LOOPING

We believe that the use of an 'Over Unity' (produces more energy than it consumes) fuel to power the OASIS machine will permit us to create a looped, auto-running machine that some would say is not possible. They base their opinion on the belief that we are proposing a perpetual motion machine, which they say violates our present laws of physics. We are indeed creating a 'free energy' machine, and you have been lied to relative to the 'Laws of Physics'.

HERE'S HOW LOOPING WORKS

Instead of plugging the H2 FUEL PRODUCTION UNIT (FPU) into the wall, we instead plug it into the GENERAC power generator. Yes, I know that sounds crazy, but read on.

The FPU needs a battery, the same as an automobile, to get started. You turn it on using battery power, the HHO or H2 gas begins to bubble out of the water, and gas pressure begins to build up to about 20 psi. When the pressure is at that level, you turn on the GENERAC, which will start up about as fast as your car starts. The GENERAC now has electricity coming out of its POWER CONDITIONER and the AWG unit starts up.

Here is where the magic starts: With the OASIS machine, it takes roughly 1 kilowatts of energy to produce the HHO fuel by electrolysis (aka 'Water Splitting'). When you burn this HHO fuel in the ELECTRIC POWER GENERATOR, it produces 8 kilowatts of electric power. The LOOPED POWER SUPPLY cord takes 1 kW of electric power back to the H2 FUEL PRODUCTION UNIT, leaving 7 Kw of power to be supplied to other devices. We can provide videos of this process, and refer you to websites where this can be demonstrated.

The 8 kW output of the GENERAC has more than enough power to keep the FPU running, because that FPU unit only needs less than 1 kilowatts to operate, leaving 7 kilowatts to operate the AWG units. The battery stops powering the FPU as soon as the GENERAC starts putting out power. This is just the same as your car, where the battery stops providing power as soon as the engine starts running.

Do we suggest that we can produce a perpetual motion machine? No, not at all. However based on what the OASIS machine can do, it does on the surface appear to be perpetual motion. The answer is that we have rediscovered a phenomenon that has been well known for over 100 years, ever since people started working with hydrogen. Of the several ways to burn H2, you always get more energy back than you put into the burn process. This has been very clearly demonstrated with cold fusion. Cold fusion has survived the vigorous attempts to discredit it. However, it does work.

Not convinced yet? Well, I don't blame you. You would have a lot of trouble finding any information about this over-unity business on the internet. However, the Peswiki website did put some information about it at

http://pesn.com/2010/07/13/9501671_Hydroxy_Generators_and_OU_Replications/

When hydrogen is burned, you always get more energy out than the energy needed to produce the hydrogen fuel. You will not be able to get verification of this statement from the internet. There are a few verifications of this regarding cold fusion, and a new group featured at <http://www.solarhydrogentrends.com/#works>

Because of this energy boost that hydrogen fuel provides, you can take the power cord that you used to initially power the hydrogen production unit, and loop it so that you plug it into the electric power generator. Sounds crazy, doesn't it? But I know it works. You can get more info from the following.

LOOPING DEMONSTRATION

THE POWER OF HHO SELF-RUNNING FREE ENERGY SYSTEM RUNNING A 400-WATTS LOAD See https://www.youtube.com/watch?v=cMlciNOyo_U

This video is about a shop cart that is carrying the following components:

1. A GENSET, which performs the same function as our GENERAC.
2. An HHO gas production unit, also called a water splitter.
3. A large blue rheostat to control HHO gas production rate.
4. A bubbler to prevent back flash.
5. Power cords to connect the GENSET to the water splitter.
6. A starter battery. Not used for that purpose, as the GENSET is started with a pull rope and another HHO gas unit is used for startup and then disconnected.

The significant features of this video are as follows:

1. The cart is continually moving to demonstrate that it is an isolated, closed system with no external power cords.
2. A bright light provides load to the system. (It burns out about half way thru the video).
3. This demo shows that an internal combustion engine will run on HHO, and the system can be looped. Have you any idea what the implications of this looping effect are? Think about it, and smile! 100% 'LOOPED' HYDROXY GENSET

Sales- It is way too early to project sales from what we know today. However, continuing severe drought conditions in California, Sao Paulo, and other areas have created an unparalleled market place – where no matter how fast we can produce these devices, the demand will far exceed the supply for many years to come.

Competition could become our ally by focusing on research and feeding them our R&D as it grows. By cooperation with others involved in the transition into the hydrogen based energy systems of the future, there is no competition. We are all allies working toward the common good.

9. Additional Research by OASIS TECHNOLOGIES

OASIS TECHNOLOGIES will not stop with the 10 times energy gain.

www.solarhydrogentrends.com has announced over 1000 times energy gain with their hydrogen reactor. We will add their device to our components list as soon as it is available. We intend to build and test many of these alternative systems.

However the device that we present in this paper will function just as shown here, and can be easily scaled up for greater power and water production

There are several other ways to create 'free energy', but we have selected the internal combustion engine as the most commonly available machine for converting water into free energy. Furthermore, it is best understood by people everywhere. We intend to teach people everywhere how to produce their own energy, water, and food, and forever eliminate the curse of drought.

10. Future Research

In our continuing efforts to produce a better OASIS machine, we will be doing research into the following:

- Cold fusion
- QEG machines
- MEG machines
- Hydrogen reactors by the Keshe Foundation
- <http://www.keshefoundation.org/applications/energy/energy-technology/77-energy-technology-en.html>
- Oasis machines by the Keshe foundation <http://www.keshefoundation.org/pdfs/water.pdf>
- Many other devices such as the units produced by Mark Shirk, and the hundreds of devices reported by Gary Vesperman.

11. Alliances with other companies

You would have a lot of trouble finding any information about this over-unity (Producing more than it consumes) business on the internet. Here are some of my collaborators:

PESWIKI website

http://pesn.com/2010/07/13/9501671_Hydroxy_Generators_and_OU_Replications/

A new group is working on a hydrogen reactor at <http://www.solarhydrogentrends.com/#works>.

We are presently in discussions with several potential design/build contractors who are especially well qualified to work with us in the development of the OASIS machine prototypes.

Graphene Desalination Membrane

Oak Ridge National Laboratory scientists are hot on the trail of a new graphene desalination membrane, which could free up vast amounts of the world's water resources for human use. Currently, according to the lab, more than 99% of the world's water is undrinkable, much of that being locked up in seawater.

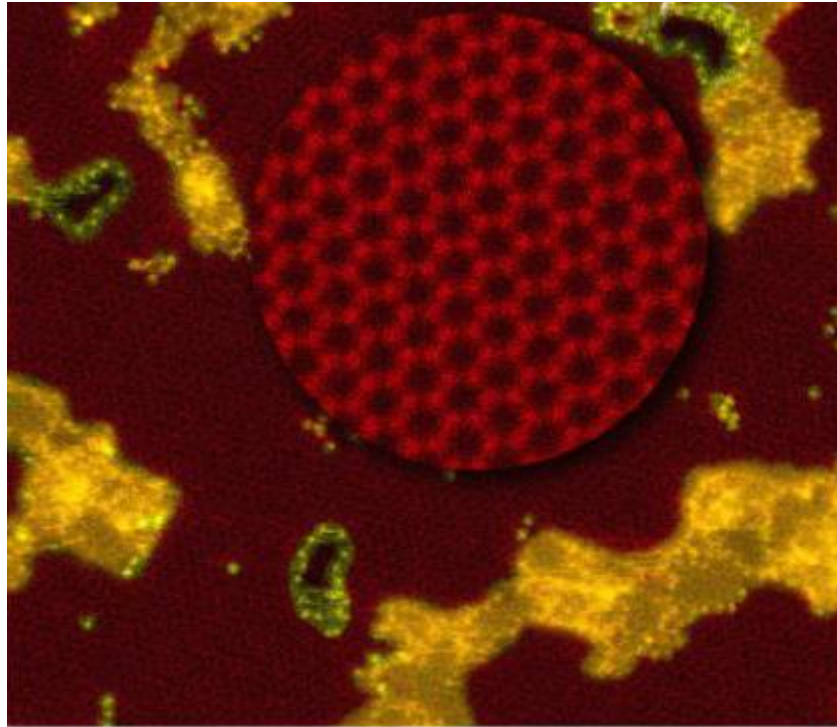
Somewhat ironically the whole thing is based on methane, the chief component in natural gas. Those of you familiar with natural gas fracking issues might be giving it the stinkeye on that account, but let's take a look and see what they're up to.

The Desalination Conundrum

Conventional desalination involves a process called reverse osmosis, in which water is forced through a membrane.

Reverse osmosis is a big step up from distillation in terms of energy consumption, and more efficient systems are in the pipeline (check out this four-in-one desalination process, for example).

Despite recent improvements, though, reverse osmosis still sucks up huge amounts of energy, and part of the problem is the membrane. Conventional membranes are based on polymers (plastics). They tend to get clogged up during the process, and they have to be cleaned regularly in order to keep operating at their personal best.



One emerging solution is solar-powered desalination.

Renewable energy helps to reduce dependence on fossil fuels, but it doesn't address the membrane issue. In an increasingly crowded world, energy efficiency is a critical factor, regardless of whether you're using fossil fuels or renewables.

An Energy Efficient Graphene Desalination Membrane

That's where the graphene comes in. And the methane, too.

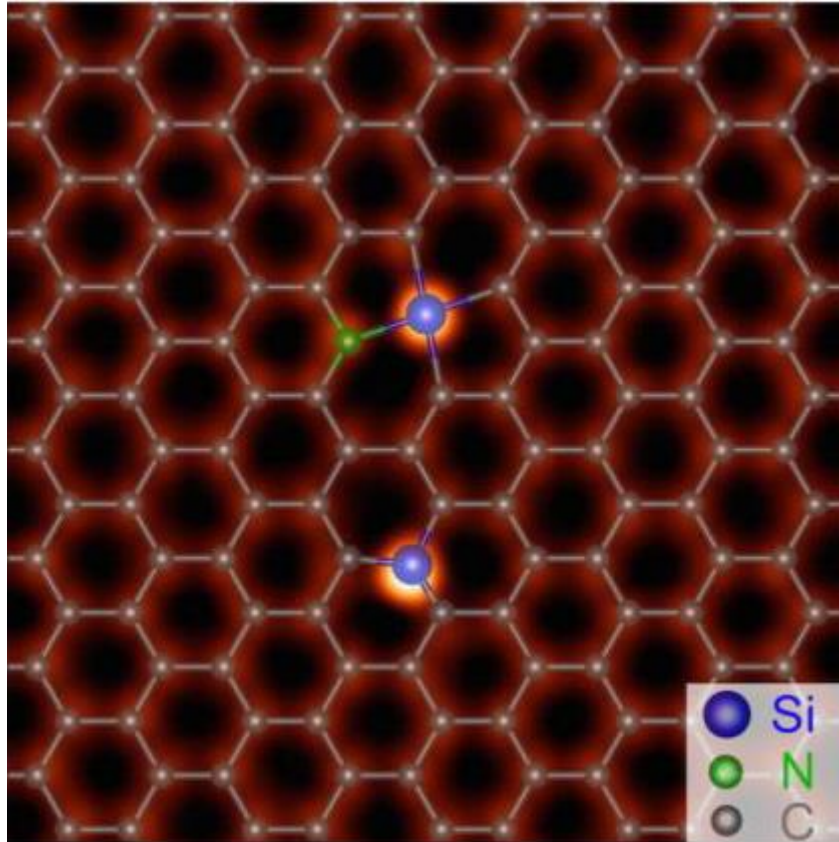
The new Oak Ridge graphene research is still in the proof of concept stage, but things look promising. The idea is to replace conventional polymer membranes with graphene. Graphene is a relatively new form of carbon, first discovered in 2004. Since then it has engendered thousands of research papers as scientists dig into its unique properties.

Below is a schematic look at graphene, showing its unique hexagonal structure (the two blue areas show the chemical bonds of impurities in the graphene sheet):

Graphene is only one atom thick but it is super-strong. A graphene membrane could be made thinner and more porous than a polymer membrane, so you would need less pressure — and therefore less energy — to push water through it.

The problem is how to make the stuff at commercial scale. Graphene is only one atom thick, so fabricating graphene is a delicate task.

The Oak Ridge team also had to figure out how to punch precisely sized holes in a sheet of graphene, large enough to let water molecules through, but too small for salt ions to pass.



Here's how the lab describes the methane part of the process for making graphene membranes:

To make graphene for the membrane, the researchers flowed methane through a tube furnace at 1,000 degrees C over a copper foil that catalyzed its decomposition into carbon and hydrogen. The chemical vapor deposited carbon atoms that self-assembled into adjoining hexagons to form a sheet one atom thick.

That was the easy part. The next step involved putting the graphene sheet on a chip of silicon nitride, and exposing it to an oxygen plasma in order to force out selected carbon atoms. That left a hole or pore in the sheet.

The team was able to tune the number and size of the pores by varying the length of time that the carbon sheet was exposed to the plasma.

That's a whole story in itself. To calculate the most effective pore size, the team went over to a shared science user facility at Oak Ridge called the Center for Nanophase Materials Sciences, and asked to borrow their scanning transmission electron microscopy (STEM) gear.

STEM provided the team with an atom-scale image of their graphene sheet, which they used to correlate porosity with its transport properties. That enabled them to calculate the optimal pore size, and distribution level, for desalination.

In case you'd like to try this at home, that would be pores in the range of 0.5 – 1 nanometers across, distributed at a rate of one per 100 square nanometers.

The topmost image in this article shows the red graphene membrane stabilized with yellow silicon atoms. The circular figure is an enlargement to show off the honeycomb structure. Ignore the orange areas — those are residual blotches of a polymer.

Just What the World Needs: A Methane Based Graphene Desalination Membrane — No, Really

So far the graphene desalination membrane has passed its tests with flying colors, achieving almost 100 percent rejection of salt ions while allowing water to flow through at a rapid pace. To ice the cake, according to Oak Ridge the methane-based fabrication method could be scaled up to a commercial level.

That's not such great news when you factor in the rapid increase in environmental, public health and quality-of-life baggage carried by oil and gas fracking operations. In the US, for example, fracking (short for hydrofracturing) was practically a non-issue when it was confined to thinly populated areas in western regions, but in recent years it has exploded into more heavily populated areas as the result of new shale discoveries.

The use of methane in water purification is particularly ironic, given that one of the major issues in natural gas fracking is water contamination from both fracking fluid and fracking wastewater disposal.

On the other hand, when you consider the growth of methane-rich, renewable biogas sources, perhaps someday in the sparkling green future super-efficient graphene desalination membrane can trace its roots to your friendly neighborhood hog farm.

<http://cleantechnica.com/2015/04/03/methane-rescue-new-energy-efficient-graphene-desalination-membrane-99/>