

Think Different: Worldwide
Prosperity Through Abundant Energy

Presentation prepared for

 Mr. Tim Cook, CEO
Apple Inc.

USCL corporation (parent entity)



Energy Cite
Sacramento, California

At the current rate of communication & learning,
within the next 20 years, mankind will have
virtually unlimited powers.

What Role Will Apple Play?

An extraordinary confluence of science & technologies is happening NOW

Super Computers ▶ Unlimited Bandwidth ▶ Nano-technology ▶ Bio-technology ▶
Robotics & more ▶

Super Computers ▶ Unlimited Bandwidth ▶ Nano-technology ▶ Bio-technology ▶ Robotics & more ▶

These technologies are already changing the world. Together they will give mankind extraordinary powers

The missing element is:

Inexpensive, virtually unlimited energy

Inexpensive, virtually unlimited energy

Apple can play a vital role in solving the long-term need for unlimited energy


The “Apple Effect”

(Instant worldwide communications & the ability to think different)

must be applied to energy awareness, understanding & direction

Why and How


“Our message, to people around the country and around the world, is this: Apple is open. Open to everyone, regardless of where they come from, what they look like, how they worship or who they love” — Tim Cooke, Apple CEO


 products can reach billions & billions of people;
today they are in 166 countries.

 connects the world; person to person, and to



& much more

 has become a standard bearer for corporate responsibility to protect or our planet’s environment.

 hired Lisa Jackson, former head of the E P A, May of 2013; as Administrator of the EPA, Ms. Jackson signed a [MOU with United Nations Environmental Programme](#) on February 21, 2011 calling for reduction of fossil fuels and conservation of energy.

As people in lesser developed countries are exposed to the higher standards of living in developed countries through this instant communication, their aspirations increase to become more highly developed countries.

The fundamental “ingredients for a comfortable life” of citizens in any country are abundant affordable food, clean water, and energy: security, transportation and health issues follow.

If all people in the world are to live comfortable lives and thrive, we must increase total worldwide energy production by greater than 4.

To do this requires much more fossil fuels to be burned at a time when many believe this leads to climate change. The only other alternative is nuclear fission which presents other undesirable problems.

There is only one way to produce the huge amounts of additional power needed. That is through the conversion of matter into energy by clean, safe fusion.



Fusion Elevator Speech

In order for all people in the world to live comfortable lives and have the ability to prosper, we must increase current total worldwide annual energy production by a factor greater than 4. This is not possible, and if it were it would **deplete fossil fuel reserves** before the end of this century. Today the United States has 4.5% of the world's population yet it uses over 25% of the world's annual energy production. "Alternative green and renewable" energy sources **can supply less than 5%** of projected 2050 total energy requirements. There is only **one way** to produce this amount of energy to support mankind. That is the conversion of mass into energy through the. **process of controlled fusion**. As a matter of **national security** and as a moral imperative to safeguard the future of all people in the world, Americans must unite to achieve this goal and demonstrate controlled fusion within a decade. In the interim Americans **must understand** the need for energy conservation and the successful achievement of this global energy mission.

Why and How

Where things stand now

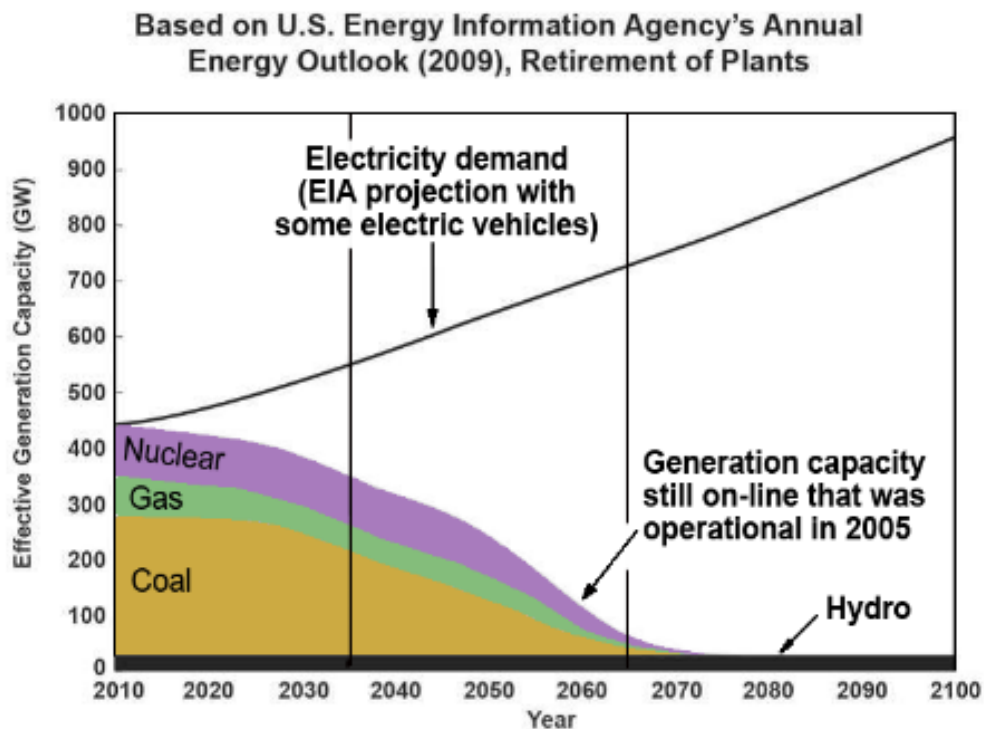
Apple's position is "let's not debate climate change; let's stop it".

The focus to date has been on a reduction of the use of fossil fuels.

Apple hired Lisa Jackson, former head of the E P A, May of 2013; as Administrator of the EPA, Ms. Jackson signed a MOU with United Nations Environmental Programme on February 21, 2011 calling for reduction of fossil fuels and conservation of energy.

The electric vehicle is part of the solution — or is it? — Only if we can generate massive amounts of 100% clean, nonpolluting, inexpensive and virtually inexhaustible power in the next two to three decades.

The EIA notes that as electrical generation capacity goes off line due to aged plant retirement, electric vehicles will require considerably more power to be generated; solar simply cannot get it done.



What's needed?

How do we do this consistent with our current energy needs in the developed world, and the needs of the developing world?

We must work together to create the **ultimate source of power** capable of replacing fossil fuels and generating 4 to 5 times more power than the world is currently producing today.

This means developing **this new source of 100% nonpolluting, clean, safe power** which does not use up natural resources over the next couple of decades, so that fossil fuels can begin to be phased out without negative impact.

The **only realistic solution** is fusion power.

A solution

Some have suggested that **Apple actually develop fusion power** as an internal R&D project based on its profits.

A better approach is for Apple to facilitate fusion development through a consortium of private enterprise companies, national laboratories, energy companies, scientists, and utility companies. This keeps Apple out of the politics and protects current green energy projects and government incentives.

Apple can help frame the problem correctly by connecting millions of people and allowing them to discover the facts of energy **through interactive video games that teach**.

Apple can join with USCL EnergyCite® and leverage Apple's "smart home automation" product line based on **USCL patents, IP, and technology** to bring this message to millions of utility customers across the nation.

How it would work

The consortium can generate significant revenues in the \$100s of millions annually from the utility industry, based on licensing fees to fund fusion science, research, & development.

This can be positioned as the bridge to the future; green renewables as we know them today along with the responsible use of fossil fuels as needed to maintain today's standard of living and national securities of nations, along with the development of the ultimate solution to get us **off fossil fuels** before it is too late.

Developing fusion power is the 21st century Apollo Moon project; Apple can get this to every home in America every minute, hour, and day.

Who might help fund the development of fusion energy?



Philanthropists and Socially responsible investors are especially encouraged to join in this project now and increase their contributions based on performance over time.

“Giving Pledge” donors are encouraged to participate at this early stage

This is not a Liberal or Democratic issue nor is it a Conservative or Republican issue. This is a humanitarian issue for the benefit of all mankind with global peace & prosperity being the end result.

Why it's good

Non-fiction bestselling author, Gerald Schroeder, Ph.D. (MIT, nuclear physics & earth science) teaches that man has a “spirit” that transcends his “programed soul for success” and that when this Spirit or Neshamah is in sync he creates great and wondrous things for mankind. Apple’s corporate success is a matter of record and its “spirit” to do good and transform the world for hundreds...thousands of years to come.

Dr. Gerald Schroeder discusses this concept in Jerusalem with Tom Tamarkin in this video



Dr. Gerald Schroeder wrote an article on this concept at our request.

Dr. Schroeder’s books and complete video interview in Jerusalem are provided.

Who is USCL?

USCL background

Why USCL?

Who What When Where & How

Revolutionizing Utility Metering, Billing, Customer Information

January 2001 California makes worldwide headlines

January 2001 USCL begins development of prototype EMS-2020



April 2001 USCL unveils working EMS-2020 prototype at an Open house attended by California State Senator Tom Torlakson

On May 9, 2002, USCL contacted President George W. Bush in the White House and informed him of our activities regarding the EMS-2020 development and the SUM technology developed by SMUD and the DOD

USCL receives letter from the White House regarding its innovative Smart Meter and Customer display products

Senator Torlakson introduces Senate Bill SB-1976; Approved by the California Governor September 24, 2002

Senate Bill 1976 leads to two year SPP pilot project



USCL goes before the California Energy Commission on Oct. 17, 2003 and lays out the need for the In-Home Energy Display and Home Area Network.

Tom Tamarkin files testimony with the California Public Utilities Commission on the importance of in-home customer energy displays

California Public Utilities Commission (CPUC) begins to mandate AMI for the state's three Investor Owned Utilities Q2 2004; over 12 million old fashion electro-mechanical power meters will be replaced in California by 2012

Southern California Edison (SCE) files negative business case model with CPUC for AMI; Vice President provides negative testimony at CEC and CPUC public hearing November 2004

USCL prepares detailed letter and AMI Team Roadmap PowerPoint for SCE President Robert Foster and personally delivers documents to Mr. Foster's office January 29 2005

SCE files 480 page five volume positive AMI business case model largely based on USCL's letter and AMI Roadmap March 30, 2005

Volume 1

Volume 2

Volume 3

Volume 4

Volume 5

SCE receives approval from CPUC to proceed based on USCL's suggested RFI and RFP for new innovative technology providing a robust set of new consumer oriented features as well as new utility features

SCE issues RFP for 5 million AMI meters and communications systems January 2007; USCL is one of 9 approved bidders (Adobe PDF document)

USCL prepares its State-of-the-Art DM-06 digital meter or smart meter spec for Southern California Edison (SCE) as part of the "RFI" submission in November 2006 which became the new benchmark for "smart meters" in the United States. (Adobe PDF document)

USCL's development of its "Smart meter" for SCE was documented in a PowerPoint presentation used for the SCE RFP internal review.

On July 24, 2008 a patent application by Southern California Edison & Paul DeMartini was published by the United States Patent and Trade Mark Office.

The patent examiner objected to all claims in the first office action and cited the USCL patent 7,379,791 as the primary reason for each claim. SCE did not file affirmative responses to the office action and this patent application went abandoned.

On August 13, 2009, the United States Patent and Trademark Office published a second patent application by Southern California Edison and Paul DeMartini for an in-home display connected to a smart meter. This applications claims were also objected to by the USPTO's examiner in the first office action and based on the Tamarkin 7,379,791 disclosures as well as other prior art in the display field and this application was also abandoned by SCE.

USCL's Tom Tamarkin was named a Smart Grid Industry pioneer on November 6, 2013 by *Smart Grid Today*, the utility's leading news publication on meters and the grid.



The image shows the cover of the 'Smart Grid Today' magazine, 'Exclusive Industry Report 2013 Edition'. The cover features a dark blue header with the magazine title in yellow and white. Below the header is a row of six small, circular portraits of various individuals. The main title of the report is 'SMART GRID PIONEERS - 2013 Edition', with 'Smart Grid Today Exclusive Report' written in a smaller font to the right. The featured article is titled 'Utility expert describes harm from anti-AMI lawsuits' by Tom Tamarkin. A sub-headline reads 'Legal costs of suits pushed into rate-bases, taxes'. The article text begins with 'JULY 24, 2013 — Anti-smart-meter campaigns across the US, though small in number, threaten to give customer-engagement efforts by utilities a "black eye." Utility Services Customer Link (USCL) CEO Tom Tamarkin told us this week. "It's costing utilities a great deal of time, resources and money," to the point of "having to hire consultants to counter a lot of their claims," he said. Tamarkin is a utility-industry expert who has been at the forefront of smart grid's advance in California -- and took up the cause of defending smart meters because anti-smart-meter advocacy is "counterproductive to the industry," he said. His firm, Carmichael, Calif.-based USCL, began making in-home energy management monitors in response to the California energy crisis of 2000-01.

January 28, 2014 United States Patent Office granted and published Tamarkin, et al, U.S. Patent number 8,639,390

Talking Points

Who: Tom Tamarkin is the inventor of the utility “smart meter”; with over 60 million installed in the US and another 40 million by 2018. He has been issued 6 patents in US, China, EU & Israel; founder of USCL and PowerRFuture. Patents cover the use of the smart meter in the utility’s billing system used to move \$225 billion annually from all electrical utility customers in the country. CBS News featured in major market newscasts. Over the last 10 years Tamarkin has become a leading expert on why fusion power has not been demonstrated and commercialized and PowerRFuture is a leading fusion advocacy and information resource.

What: Hundreds of billions of dollars have been spent on climate change research and green energy alternatives like solar, wind, bio-fuels which are by themselves not capable of supplying 5% of 2050 energy demands. By 2060 virtually all electrical generating plants now operating in the U.S. will be retired due to age. Only coal, natural gas & nuclear can generate material amounts of power. New ones are not being built due to uncertainty in government policy (EPA) and high investor risk. USCL will generate significant cash (hundreds of millions annually) by licensing its patents to utility companies and lots of manufacturers. Much of this money will be invested in the development of the next generation of energy known as fusion energy.

When: The development of fusion will take a decade and must be started now because of fossil fuel reserves and the retirement of current generation capacity. This is shown in our example plan. Once demonstrated it will take another decade to commercialize and another to replace current infrastructure. Whereas people might assume that our government and DOE is funding efforts to get this done in the U.S. that is simply not true. Other countries are ahead of us. (“He who controls energy, controls the world”...)

Where: We propose development work to be done in the US through a consortium of companies and National Laboratories like Los Alamos National Labs, Lawrence Livermore, and others and actual experimental and pilot demonstration facility in Israel. We propose to do this in Ariel, Israel and in close cooperation with the University of Ariel. Tom Tamarkin has been working on this since 2006. Once we have critical resources and funding in place, our contacts in Israel are Yigal Cohen Orgad, Chancellor of the University. This will also be elevated to the Minister of Science and the PM given its worldwide importance. Why Ariel? Because it is outside the federal government’s jurisdiction and therefore zoning and regulator issues such as Israeli labor and OSHA equivalent are circumvented.

Why: We will educate Americans in energy issues and matters of basic science so they in turn can steer elected leaders and appointed regulators into making correct informed policy decisions. We do this through video games we will develop. Doing this in Israel sets Israel apart in the world by solving energy for millenniums to come and stabilizing the Middle East by reducing oil revenues and forcing the beginning Islam reform. Part of the strategy with Israel involves Iran and a position on Iran’s nuclear program already shared with the Prime Minister.

How: Initially USCL will begin the formation of its energy consortium and bring in one or two “lead” corporate partners based on our patents and IP. USCL will become a cash cow from patent licensing soon so the enterprise is self-funding beyond this. Why? Because virtually every home and small business in America has electricity and a power meter and spends money with their electrical utility which infringes our patents unless licenses are in place.





USCL Patented Technology

US Granted Patents:

7,379,791 May 27, 2008

8,306,668 November 6, 2012

8,639,390 January 28, 2014

Patents also granted in China, EU and Israel



Since energy is the crucial link to solve the world's most difficult problems, USCL has focused first on the Smart Meter & Grid consumer interface, because it is the fastest and least expensive way to reduce energy consumption and decrease security risk.

Patents cover

- Utility billing system + smart meter + home & mobile energy display/control devices/apps
- In-home presentation of electricity consumption, cost and bill
- Interconnection of smart appliances
- Interconnection of smart thermostat
- EV charging station
- Future home automation devices (Internet of Things)
- Subscriber side utility billing & "pay as you go."

Patents



Figure 1. Smart grid technologies are being applied across the electricity system, including transmission, distribution and customer-based systems



Source: Courtesy of Alstom Power & Light Company

EnergyCite® is a USPTO registered Trademark

United States and foreign patents Tamarkin, et al, assigned to
USCL

Our patents cover the new smart meters which send and receive data to and from a utility company and devices in the home or office. The first 2 granted US, Chinese, EU, and Israeli patents cover the distributed network system. The January 2014 US patent includes specific claims covering the use of the following with smart meter or internet connections with a utility: •In-home display of utility rates, consumption and cost; regardless of display device; PC, tablets, PDAs, smart phones and the like.

•Use of smart phones for display & control of utility commodities (electricity, gas, water) •BlackBerry expands IoT certificates to ZigBee smart meters

•Real time billing and direct payment for services via the system

•In-home connections with “smart appliances”

•Integration with “smart thermostats” for heating and air-conditioning. •Nest smart thermostat example with ZigBee smart meter compliant commutations
Smart thermostat market buzzes with buy outs and ‘proof’ they work

•Nest Touts Three Studies Claiming Its Thermostat Pays For Itself In Two Years

•Schneider Electric Unveils Wiser Air; Makes Move into Thinking Thermostat Market

•Transform Every Customer into a Demand Response Resource

•SDG&E loans in-home display units to smart meter customers

•Integration with “smart” electric vehicle charging stations including DR capability •Siemens Versicharge charging station

•Electric vehicle charging station and energy “dash board” connected over the in-home system

• Demand management: how Duke Energy plans to integrate EV charging

•Automatic meter reading of meter data by utility to produce customer bill. See off site example to show commercial activity

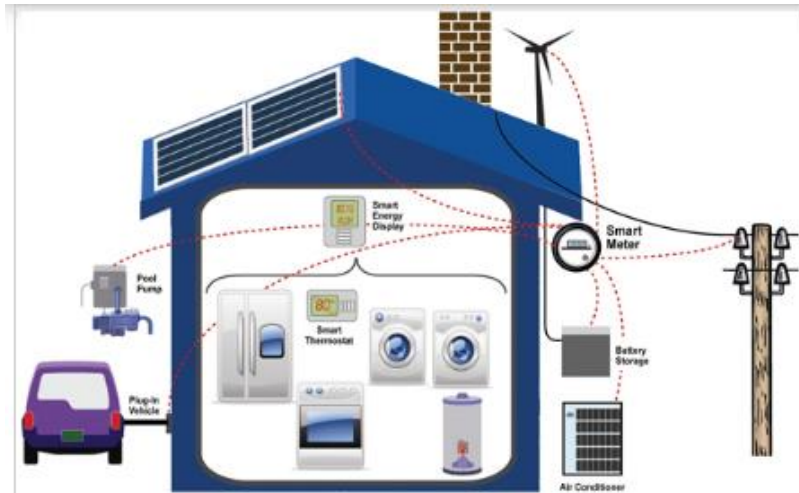
•Remote service turn on and turn off to support move ins and move outs at a utility service drop point and facilities collections from chronically late bill payers. See off site example to show service disconnect/connect commercial activity

• Subscriber side billing and prepayment including electronic funds transfer from display and mobile devices. See off site example of prepaid and subscriber side billing activity & trends

•Internal smart meter control and communications module to facilitate wide area communications to and from the utility and the meter and to facilitate data communications to and from the local subscriber’s or home area network and the meter. See off site example showing commercial activity

Who owns the data inside the utility meter at the customer’s location?

Dian Grueneich, former Commissioner California Public Utility Commission, states that [the customer owns the meter data and therefore is entitled to direct access](#)



To avoid infringement, a chain of system component manufactures and the utility company deploying a smart meter containing the data communication capability must be licensed by us to “practice the IP.”

As an example of such a system covered by our patents consisting of smart meters, smart appliances, remote data communications to utilities and to customers over smart phones and PCs please see this news article.

Our specific business strategy to license the end users and contributory potential infringers is confidential and proprietary to USCL EnergyCite® and will only be shared under terms of non-disclosure with a NDA.

Follow this link to a description of USCL’s patents and their business implications.

Priority date: August 3, 2004

Granted in US, China, EU, and Israel based on Publication No. US 2009/01-9056 A1

USPTO patent 7,379,791 granted May 27, 2008

USPTO patent 8,306,668 granted November 6, 2012

USPTO patent 8,639,390 granted January 28, 2014

USPTO Patent 8,639,390 assignment to USCL Corporation (correction from MGT Gaming when issued.)



Shanghai, China Patent office: Jeremy Tamarkin, Tom Tamarkin and two Chinese patent attorneys




USCL Jerusalem, Israel patent attorney explains USCL's patents

Integrated Metrology systems and information and control apparatus for interaction with integrated metrology systems

Abstract

A system is disposed at a location of a utility commodity subscriber for informing the subscriber of and controlling utility commodity usage. The system includes utility meters, an information and control apparatus, and a first and second data communication link. The meters measure usage and generate usage signals. The information and control apparatus includes a microprocessor, a memory, a clock, and a user interface. The first data communication link is between the utility meters and the information and control apparatus, and the second data communication link is between the information and control apparatus and one or more central locations. The second communication link also provides rate information to the information and control apparatus and utility commodity usage data to the one or more central locations. The microprocessor computes an accumulated cost of utility commodity for a predetermined period of time. Information related to the accumulated cost is output to the subscriber.

 Apple is invited to become the Lead Partner in the

Smart Power Utility Consortium

- ▶ Smart Meter – Smart Energy Home Product Development & IP Licensing
- ▶ Fusion Energy – Science, Research & Development Program



Smart Meter



- The end user of the IP covered by the USCL patents is the utility company
- It is the utility company that must practice the IP and therefore obtain licenses from USCL through the consortium which produce long term recurring revenue
- Hardware manufacturers such as meter companies, meter communications modules, in-home devices like smart appliances, electric vehicle charging stations, smart thermostats, and the entire constellation of home automation and energy management devices connected to the smart meter via the ZigBee RF network are contributory infringers and must be brought into the consortium as well based on reasonable, fair, and equitable license fees.
- As lead partner Apple gains enormous advantage over rivals in the smart phone and smart thermostat businesses.

How: Initially USCL will begin the formation of its energy consortium and bring in one or two “lead” corporate partners based on our patents and IP. USCL will become a cash cow from patent licensing soon so the enterprise is self-funding beyond this. Why? Because virtually every home and small business in America has electricity and a power meter and spends money with their electrical utility which infringes our patents unless licenses are in place.



Overview: the EnergyCite® Consortium

A Proclamation to the World

A consortium will be formed consisting of utility companies, meter manufacturers, meter communications module manufacturers, Consumer electronics firms, energy companies and defense contractors. The short term objectives of the consortium will be the standardized integration of smart meters and the subscriber side data communications and interface to smart meter and the remote utility data operations system. The long term mission of the consortium will be the facilitation of the development of fusion power. Revenues generated from the consortium will be invested in selected fusion development programs conducted by private enterprise organizations and government national labs.

Tom Tamarkin is the principal inventor of a system covered by three U.S. patents and 3 foreign granted patents which couple a utility company's remote computer with a subscriber's power meter and devices inside the subscriber's premise like smart phones, smart electric vehicle charging stations, "smart appliances" displays, controls, thermostats, etc. These patents are assigned to USCL/EnergyCite®

This is a system patent known as a distributed network system because it consists of a local area network (subscriber's premise) a wide area network (coupling the power meter to the utility company or third party sub-contractor) and the power meter plus the collection of end point devices like appliances, thermostats, smart phones, and the like.

This series of patents must be practiced by utilities and consumers when the smart appliance, smart phone or thermostat is connected into the system. Today close to 50 million "smart meters" have been deployed throughout the country. This is accomplished through licensing agreements.

By 2018 virtually every power meter in the country will be replaced with the new modern digital electronic "smart meters."

Energy Management & Conservation Apps

Our company, EnergyCite® has a device which can be provided to the consumer at a very low cost, to provide the consumer with the real time data for display, archival and control capabilities that the Department of Energy wants the utilities to provide to all customers under its “Green Button Program”.

Our product does the data analysis and math in real time at the subscriber’s premise, rather than transmitting it to a remote location where the data is regurgitated and sent to the subscriber 24 hours later.

Our plan is to make this issue known all over the country by using both social media and traditional media. The objective is to obtain customer buy in and support.

The overwhelming concern is that increased federal regulation and the aging installed base of electrical generation capacity will cause an incrementally accelerating shortage of electricity and an increase of price leading to governmental intervention via electricity rationing by time and/or peak power delivered.

An additional concern is this system infrastructure will be used as a compliance and enforcement system intruding on subscriber’s privacy.

We Educate the Public on Energy

Our focus will be on educating people about science and energy related facts through books, social media and through developing a complex and educational energy scenario game.

Revenue from the sale and licensing of our products will be invested in the fusion advocacy and a consortium for fusion development.

We will take on the organization of an industry consortium to actually manage fusion development.

Initial Plan

Part of our plan involves taking our current 2050 Projected Worldwide Energy Supply and Demand study and commissioning a group of grad students to refine it in Israel at two universities. This will give very authoritative facts and data on just what a scheme “Big Green” is.

This data will be incorporated into Dr. Shalom and Yaffa Eliezer’s book that we have engaged them to write. The book will properly frame the need to solve energy and the way to do it through fusion. (Due to politics and “Arab oil money” this has been hard to get done in America.) Watch the Tamarkin – Eliezer video interviews.

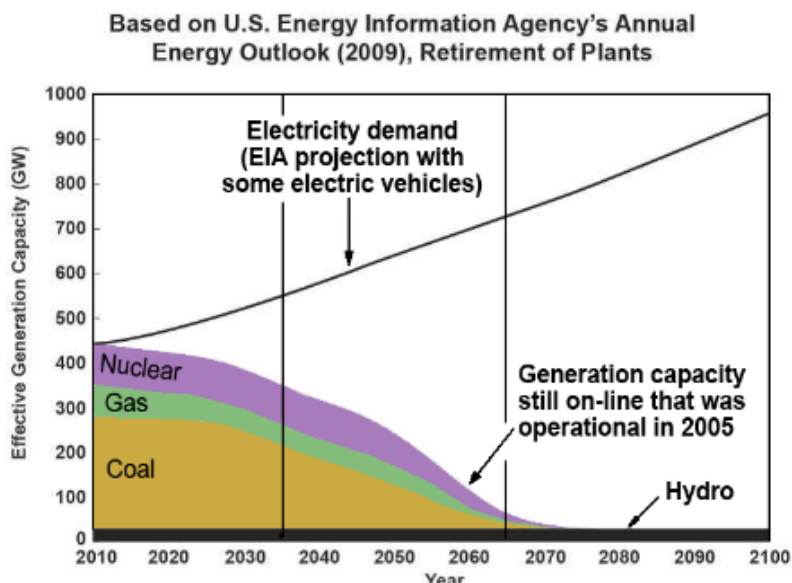
We have also engaged Dr. Gerald Schroeder in Jerusalem to write a new book on the moral imperatives to correctly solve energy and the reason fusion is the only solution. Watch the Tamarkin – Schroeder video interviews

The information resulting from the Eliezer book and the Schroeder books will be great source material for educational games and for classrooms.

The EnergyCite® product also has several screens showing fossil fuel reserves, real time consumption and different nations’ use of energy in real time. This creates more awareness of the fossil fuel depletion situation and the need to go beyond oil for the sake of family’s children and grandchildren.

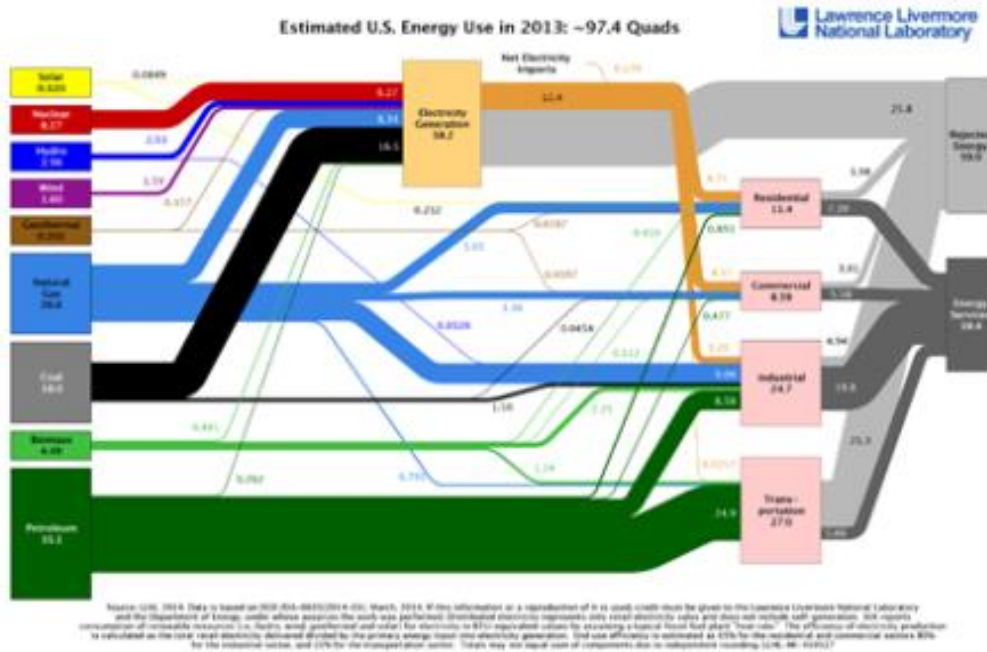
Why the consortium is necessary

The CEO’s of the top largest utilities will embrace the EnergyCite® Consortium. Overlooked fact by public & media: by 2060 virtually all current energy generation capacity providing baseload grid power will be decommissioned due to age.



Why not the current renewable energy methods?

Solar, wind, biomass, geothermal and the like can only provide a very small percentage of baseload power as can be seen in this Energy Flow Chart of Lawrence Livermore National Labs.



The leading renewable candidate, solar, takes far too much land area and time to deploy to provide a material percentage of baseload power; its life cycle is only 25-30 years as is discussed in the paper “The Green Mirage.”

Google, a leading “green & renewable” energy advocate recently announced that solar, wind, geo-thermal and the like simply won’t work to power the world; their Ph.D. scientists suggested a disruptive energy source and highlights fusion; see Google article.

The Only Realistic Solution is Fusion.

The EnergyCite® Consortium will include major oil, gas and coal industry players because their long term future depends on getting off fossil fuels and diversifying their products and services to thrive in the future; The energy industry will embrace this once they understand.

The EnergyCite® Consortium's Mission, Purpose, Benefits, & Goals are described in About PowerRfuture.

Isn't the government handling fusion?

Learn why the two government "mainline" fusion science approaches are not the quickest and least expensive means to achieve demonstrable fusion followed by commercial technology.

Development of Practical Fusion Power

Abstract and Sections 1-3 by T.D. Tamarkin; scientific contributors, S. C. Hsu, Ph.D., T. J. Awe, Ph.D., S. Brockington, Ph.D., A. Case, Ph.D., J. T. Cassibry, Ph.D., G. Kagan, Ph.D., S. J. Messer, Ph.D., M. Stanic, X. Tang, Ph.D., D. R. Welch, Ph.D., and F. D. Witherspoon, Ph.D.

PJMIF Concept Tutorial

Plasma Liners and the Potential for a Standoff Magneto-Inertial Fusion Reactor

Review of Plasma Jet Driven Magneto-Inertial Fusion and letter to Congress by Irv Lindemuth Ph.D.

Review of Plasma Jet Driven Magneto-Inertial Fusion by John Santarius Ph.D.

Example of a Project Management Description of the Development of PJMIF at a fraction of the cost of ITER & other government sponsored fusion programs in less than ½ the time.

Object Lesson of Government involvement in Fusion

As shown above PJMIF is the most promising least expensive and shortest path to demonstrating fusion.

In the late 1990s Dr. C.Y. Francis Thio proposed the PJMIF concept to NASA at Marshall Space Labs for long distance space propulsion.

Initial funding was approved to conduct science experiments and build prototype.

An early reactor pressure vessel was built at Marshall.

The program was later defunded for political reasons; Dr. Thio took a position elsewhere within the DOE.

In the late 2000s, Dr. Thio proposed to Dr. Scott Hsu of Los Alamos National Laboratories (LANL) that PJMIF should be pursued by LANL.

The prototype equipment from Marshall Labs was shipped to LANL



Dr. Scott Hsu, Tom Tamarkin, & Jeremy Tamarkin flanked by two un-identified LANL project scientists, in Los Alamos National Laboratory PJMIF lab in front of experimental reactor vessel

In December 2011 Dr. Hsu presented the PJMIF plan at the December Fusion Power Associates meeting in this PowerPoint presentation

In 2013 Dr. Hsu expanded the original proposal with a new proposal as published on-line containing a timeline, resource requirements and budget to achieve fusion and presented at an international conference on fusion in Berkeley, California.

In December 2014 Dr. Hsu applied for ARPA-E funding for a small subset of the PJMIF program

May 14, 2015 ARPA-E announces that Dr. Hsu's project is one of several projects selected for partial funding; ARPA-E encourages private enterprise and private investors to augment their funding in the program.

What could happen if fusion is not unlocked for peaceful energy?

Like any powerful source of energy, fusion can be used for good or evil.

Many governments including America (NNSA funds Sandia labs and NIF,) and IRAN are spending billions of dollars annually to develop laser triggered fusion systems for weaponry.

See Dr. Gerald Schroeder (Ph.D., MIT nuclear physics) & Tom Tamarkin discuss this at in Jerusalem, at the holiest site to the world's three major religions in 2103.



See the May 5, 2015 Fusion Announcement in Iran's Islamic Republic News Agency paper.

It is essential that all people in the world understand that energy can be used for evil and for good and that all people work together for the common good.

Israeli Opera Soprano, Amalia Ishak & Tom Tamarkin discuss this dual use of energy at the Israel-Lebanon border.





Making planet Earth a better place
to live.

More about [PowerRFuture](#)

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