SH-3 Corporation Polycrystal Battery
Executive summary.

2017

Background

This proposal is an executive summary to explain the crystal battery technology; give a breif overview to the product. Give an assessment of the present market place for non fossil fuel energy producting products and request the funding to continue Research and Development and production of a production prototype battery which will serve as a model of a commercial product we believe will revolutionize enegy production for the microgrid and mobile energy products market.

Present reigning green energy technologies:

SOLAR

T'au Island in the American Samoias powered by a solar microgrid with battery backup.

Click image or this link: https://youtu.be/ZeaNWttHdTE

https://www.youtube.com/watch?v=ZeaNWttHdTE&feature=youtu.be

Solar

Solar and wind are being taughted as the reigning greene energy products of choice for industry and residential homes. However these energy production facilities fare not mobile and require extremely expensive upfront capitalization.
Solar Panels have become more powerful and cost effective even as fossil fuels costs are at their lowest in 20 years.

Lithium ion batteries

Lithium-ion batteries are the current reigning energy-storage champion, powering everything from phones to cars. But as good as it is as an electrode material, lithium is relatively rare, and the cost of mining and refining it can blow out the budget for large-scale applications. The search for a cheaper alternative has led some scientists to plain old salt, and now a Stanford team has developed a sodium-ion battery that would beat lithium-ion batteries in terms of cost per storage capacity.

Sodium-ion batteries

Sodium-based batteries are making in-roads in various forms, from the standard 18650 format used in laptops, to a quirky design with an anode made of a carbonized oak leaf.
"Nothing may ever surpass lithium in performance," says Zhenan Bao, lead researcher on the Stanford study. "But lithium is so rare and costly that we need to develop high-performance but low-cost batteries based on abundant elements like sodium."
The Stanford team's design uses a sodium salt cathode where positively-charged sodium ions are bound to negatively-charged myo-inositol ions, and a phosphorus anode – all materials that are naturally abundant. The researchers

say they studied the atomic-level forces at work in how the sodium ions attach and detach themselves from the cathode, in order to improve the charge-recharge cycle.
In the end, the cathode of the sodium-ion battery has a reversible capacity of 484 mAh g^{-1}, and an energy density of 726 Wh kg^{-1}. The energy efficiency of the new batteries is claimed to be more than 87 percent, and as for the all-important factor of cost, the researchers claim this could add up to a sodium-ion battery that approaches lithium-ion
batteries in terms of performance, but would cost less then 80 percent of a lithium-ion battery with equivalent storage capacity.

This is a photo of a sodium-ion battery, designed at Stanford, can store as much energy as a lithium-ion battery for less than 80 percent of the cost(Credit: ajaphoto/Depositphotos)

Crystal ion electromagnetic and infrared radiation

SH-3 Energy Corp. has developed and tested the solid-state sources of electrical energy working from external electromagnetic and infrared radiation.

There is still a great demand for the compact electrical power sources giving a stable electric current no matter what the weather or planet conditions of the planet. SH-3 Energy Corp. has developed a battery that never degrades or fluctuates in energy surges. This battery is made synthetically from extremely

abundant and inextpensive materials. These new crystal based batteries can last for up to 5 years (guaranteed) with no recharging necessary. They are modular and are ideal for use in mobile applications. They can also be designed and integrated into a micro-grids of electrical energy for residential homes and whole scale community cSmart city infrastructure.
SH-3 Energy Corp. intends on developing innovatively designed batteries using this crystal magnetic battery technology for the following products: The mobile phones, notebooks, electrical construction tools, household appliances, modular home power generator stations, batteries for cars, motorbikes, personal flying machines and drones.

New advanced crystal based technology's features and functions are:

- Durable: water resistant, high tolerance for hot/cold temperatures, cannot be shorted out.
- Non-combustible

- Size and weight can be developed to match Lithium-ion
- Light weight in comparison with photocells and other current sources
- made of non toxic materials
- Low cost and very simple of manufacturing
- energy components can be produced to be both mobile and stationary

Examples of use: in support with an electricity in personal needs, at home, shops, schools, offices, production, administrative agencies, other.

The Technical Description of the product to be produced are:

1) Power element SH3 - is a semiconductor device with a high the conversion factor of any heat into electricity.
2) Power element SH-3 is an electrical device that operates without any electrolyte,
3) Power element SH-3 operates without consumption of chemicals, as well as without solar panels (without contact with the rays of the sun or light).
4) principle of SH-3 differs from known power supplies: ionistor, supercapacitor, all types batteries and so on.
5) Power element SH-3 functions similar to a solar battery, but it conintues to operate inot needing to be exposed to the heat and radiation of the sunrays.
6) Functionally polycrystal SH-3 is the organizer of the movement of Electrons.
7) Polycrystal takes effect at the moment of cultivation. It loses its operating energy source over time but in a consistant stable loss of energy force as it ages.

Polycrystal functioning Concept

Around us there is a large amount of energy in the form of ambient energy or heat in the Environment. We are thave developed a material we call the Polycrystal to transform this ambient heat that is in the air around us with the help of our semiconductor device the proprietary Polycrystal SH-3 into electricity.

Comparison of SH-3 with conventional photoelectric element

The efficiency of SH-3 conversion is from 40 to 60%, and for photoelectric elements Efficiency, on average, from 10 to 35%;
The cost of the SH-3 element is calculated from 0.5 to 1.0 USD for Watt of rated power, and the cost of photovoltaic elements on the average from 1 to 3 USD.
The operating time of SH-3 is 24 hours a day and is not affected by any weather conditions, as solar panels have 8-10 hours a day and directly depends on weather conditions in order to be functional. Extensive cloudiness can cause both enregy brown outs or no energy collection at all.
The estimated service life of SH-3 is approximately 10 years,to be conservative. However all scientifc estimates are that the service life of SH-3 Batteries can be as long of the Polycrystal SH-3 for 1 W of power is 1x1 cm, and the proporational operating size of the solar the battery for 1 W of power is 10x10 cm.

Comparison of the internal device SH-3 with photoelectric element:
The photoelectric element consists of:
1) External electrode (-);
2) N-silicon (P +);
3) P-silicon (B-);
4) Internal electrode (+).
SH-3 consists of:
1) External electrode (-);
2) The source of tunnel-oriented electrons of the pn junction;
3) Breeder;
4) trap of energetically charged particles;
5) Internal electrode (+).

Types.
The developed element SH-3 has at this stage one stable working modification.

Disadvantages.
At this stage of technology development, there is only one shortcoming, compared with conventional photocells - the underdevelopment of technology.


This a photo Assembling a cell to test sodium-ion (Na-ion), battery materials in a glove box(Credit: Cyril FRESILLON/CSE/CNRS Photothèque)

Density of energy.
On average, the estimated power of the element,
load is from 100 to 1000 W per kg of mass (above 100 W after processing technology to the level of serial).

Using.

Element is able to provide work in all types of activities,
using electricity.

Dependence of output power on temperature
Environment.

R&D Laoratory in Moscow. Already actively producing prototype of small crystal ion battery generators and modifying these vacuum research chambers for high performance, customized crystal ion materials. And polarization in the special way.

Crystal Energy (CE) project
Outline for Discussion

1. Recovery of the 2013 production technology. Manufacture of prototypes utilizing capacities of other laboratories

It is necessary to acquire and make components for 300 CE elements.

The following results were achieved by 2013:
- The continuous operation of an element with the power 1.5V, 0.5A
- Short circuit for the 24th hour, without the subsequent losses of characteristics.
- Operation of a sample under the permanent load for over the year

Estimation of the cost 120-480K USD (depending on quantity of sets). Time = 2 months

IMPORTANT NOTE: At this point it would be possible to calculate the estimates to produce AA size, Cell phones, Laptops production prototypes utilizing capacities of other laboratories.

2. Development of the production technology of the CE elements using upgraded Invest-C equipment.

Necessary conditions:
Upgrade of the existing capacities and the equipment.

2.1 Small-scale production of the CE elements.

The first small-scale production samples will have the size 50x50mm and 5 mm thick, will give at the same time the power around 1:5V and 0.5A.

Estimation of the cost from 1.2 M to 2.2 M of USD, 4-7 months

NOTE: This would allow immediate production of Power Banks, e.g. the size of a refrigerator could power a house.

2.2 Production prototypes: AA size, Cell phones, Laptops 6-12 months. additional funds TBD (possibly no additional funds would be needed).

3. Start of mass production of the CE elements for AA size, Cell phones, Laptops

Necessary conditions

Production Upgrade (additional equipment, pipelines, material and technical resources).

Cost, time: TBD

The Market

Compact elements of an electrical supply, for mobile phones, are on sale in number of at least 1 billion units a year.
At the product unit cost about 10 dollars for 1 piece. And additional cost about 30% on 1 unit.

Small sources of electrical energy, are also of great interest to a household. Or small settlement. Need for the environmentally friendly power sources which are not polluting the atmosphere and the soil is very high.

These power sources are demanded worldwide, irrespective of the level of development of the country.

For example, in such advanced country as Germany about 50 000 households are heated by firewood and coal. Also have no stable power supply.
Or for example the most developed country of the African continent – the Republic of South Africa, has big problems with support with stable electrical energy.

The volume of the world market of sources of electrical energy is huge and is tens of billions of dollars.
And only partially it becomes covered by such expensive and a little mobile sources of electrical energy as solar batteries and wind generators.

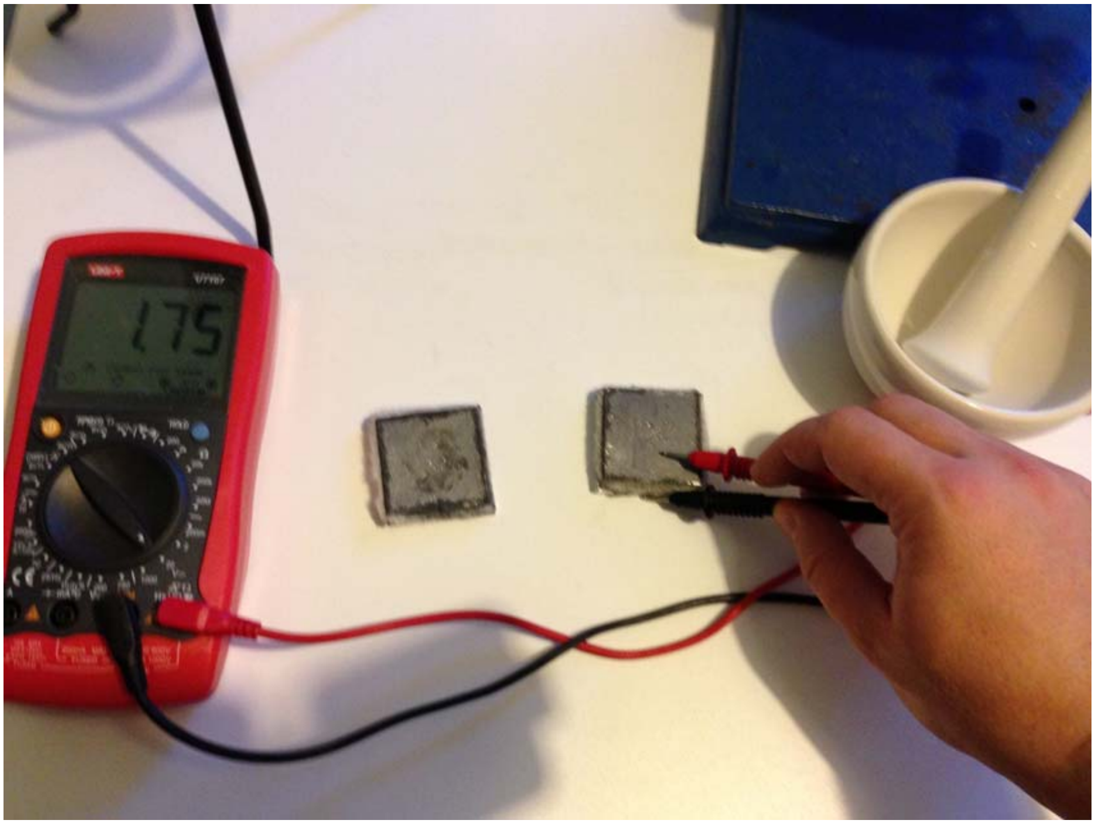
Funding required

Financing 120K of dollars is required. For construction of a prototype of power station, within 2 months.
Financing purposes:
Operational costs of production.
Production of a concept of demonstration model.
Show of operation of demonstration model.

Repayment plan

Within six months, after an output on production and sales of sources of electrical energy.

Photo of process of cultivation and testing of crystals.



APPENDIX 1

Test Report No. 7191042642-EEC12/MPO
dated 20 September 2012

PSB Singapore

Choose certainty.
Add value.

Subject

Voltage Measurement on Four (4) SH-6 Samples (Stacked Together)

Client

[redacted]

Singapore

Attn: Ms. A

Date of Measurement

13 September 2012

Description of Sample(s)

Four (4) SH-6

PSB TEST

Laboratory:
TÜV SÜD PSB Pte. Ltd.
Testing Services
No.1 Science Park Drive
Singapore 118221

Phone : +65-6885 1333
Fax : +65-6776 8670
E-mail: testing@tuv-sud-psb.sg
www.tuv-sud-psb.sg
Co. Reg : 199002667R

Regional Head Office:
TÜV SÜD Asia Pacific Pte. Ltd.
3 Science Park Drive, #04-01/05
The Franklin, Singapore 118223
TÜV®

APPENDIX 1

A. Voltage Measurement Method

1. Measurement was conducted at the client place at ' Singapore
2. The four (4) SH-6 samples are stacked on top of each other for the voltage measurement. The measurement points are from the top of the carbon lid and the base of the aluminium pod.
3. The Voltage measurement points are as advised by the client.

B. Measured Data

1. The measured voltage is 5.44 volts.

C. Equipment used for the Measurement

1. Fluke Multimeter with serial number 90880245 calibrated on 31/07/2012 and due for calibration on 31/7/2013.

D. Photo of Test Sample(s) in a Locked Transparent Box

Test Samples

Tested and Prepared by: MELCHOR F
Project Manager (Electrical & Electronics Center)
TUV SUD PSB Pte Ltd

TEST REPORT: 7191041918-CHM12-RR

Date:	17 Sept 2012	Tel:	301
Client's Ref:		Email:	@tuv-sud-psb.sg

PSB Singapore

Choose certainty.
Add value.

APPENDIX 2

SUBJECT

Screening Test of Radioactive Radiation Test, Dose Rate (α+β+γ)

CLIENT

[redacted]

SINGAPORE

Attention: MS.A

SAMPLE SUBMISSION DATE

13 Sept 2012

DESCRIPTION OF SAMPLE

On site screening test on "SH-6 Samples", performed on 13 Sept 2012.

DATE OF ANALYSIS

13 Sept 2012

PSB TEST®
Your Peace of Mind

Laboratory:
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METHODS OF TEST

APPENDIX 2

For dose rate measurement of Alpha, Beta and Gamma ($\alpha+\beta+\gamma$) radiatoin, it is scanned by an advanced survey meter.

RESULTS

APPENDIX 2

Table 1: Dose rate of radiation (α+β+γ) of the samples detected.

Sample Names	Dose rate of radiation (μSv/hour)
SH-6 Samples	0.3

The dose rate of radiation is higher than the normal natural environment level of Singapore (NEA), about 0.1 μSv/hour, but close to the environment level of the on-site laboratory room.

Guideline for reference only:

WHO (WHO 1988) has chosen an intervention level of 5 mSv in a year, equivalent to 0.57 μSv/hour (based on 365 days/year and 24 hours/day)

The IAEA limit for public exposure to ionising radiation is 1 mSv per year, equivalent to 0.114 μSv/hour (based on 365 days/year and 24 hours/day), excluding what a person normally receives from natural background radiation.

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