SOLAR WATER ENERGY, INNOVATION IN WATER AND ENERGY

Mr. Hammam Battah, CEO & Inventor (Hammam@SolarWaterEnergy.net)
Mr. Nafa Khalaf, Construction Partner/Water Specialist (nafak@aol.com)
Mr. Perry Mehta, COO (Perry@solarwaterenergy.net)

Solar Water Energy, LLC
12801 Auburn Street, Detroit, MI 48226
T: (313) 544 – 7117 / F: (313) 544-7111 / Cell: (313) 220-1635

ABSTRACT

Solar Water Energy, LLC, would like to announce that recently, 2 new technologies were approved by the US Patent & Trade Mark office. Break-through technologies that implement thermodynamic principles to convert the natural resources of ocean water and solar energy into fresh water and electrical power (environmentally friendly method).

The cost of water is 1/10 compared to the best available water desalination system. Similarly, energy cost is 1/20 compared with the best available energy sources of today.

Keywords: Solar, Energy, Water, Electricity

INTRODUCTION

Our mission is to utilize natural resources such as Solar Energy and Ocean Water and convert into Fresh Water and Energy. The U.S. Patent and Trademark Office has awarded Patents to this break through technology in order to make this mission possible and provide the world with new resources of fresh water and energy.

We are seeking: venture capitalists to provide funds/grants; private investor groups for smaller plants; partnerships with local investors in Europe and the Middle East, local municipalities or government to sponsor local plants; and to implement initial working plants.

CONCEPT

Break-through technology utilizes floating solar cells and basic thermodynamic principles to convert ocean water into fresh water and Energy. This technology produces fresh water and energy from the natural resources.

The cost of water is 1/10 compared to any other available water desalination system. Similarly, energy cost is 1/20 compared to any other available energy source

TECHNOLOGY - WATER

Table 1. Technology – Water

Technology Details (Water)
Floating Solar Cells are installed close to Coastal line as close as 100 feet
The depth of the water production structure is within 60 feet
Solar Energy is utilized to increase the temperature within the water production structure
Desalination process continues through-out the year, day and night
Desalinated (fresh) water is brought to the coastal line with minor pumping
The size of the desalination plant could be from 1 cu.m./sec. to 40 cu.m./sec. and is proportional to the area of water production structure (1 acre area will produce:10 cu.m./ sec. = 220 MGD)

TECHNOLOGY - ENERGY

Table 2. Technology – Energy

Technology Details (Energy)
Standard principles of Ocean Thermal Technology Conversion are utilized
Utilizing cooler water at 15 deg. Celsius with steam turbine is operated
Excess heat vapor is utilized which is approximately at 85 deg. Celsius
Energy generation continues through-out the year, day and night
Energy generation plant can be installed near coast
The size of the energy generation plant could be proportional to the area of water production structure (1acre area will produce : 20MW per day of electricity in addition to 10 cu. m. / sec. = 220 MGD)

PLANTS

Off Shore Plants

Table 3. Off Shore Plants

Details, Off Shore Plant Production	
The rate of water production is proportional to the area of water production structure (1 acre = 220 MGD)	Minimum Plant size 400 sq. m. = 1 cu. m /sec or 20 MGD)
Energy in the form of Electricity produced as By-product (1 acre = 20 MW/day)	No Land space needed for the plant if preferred.

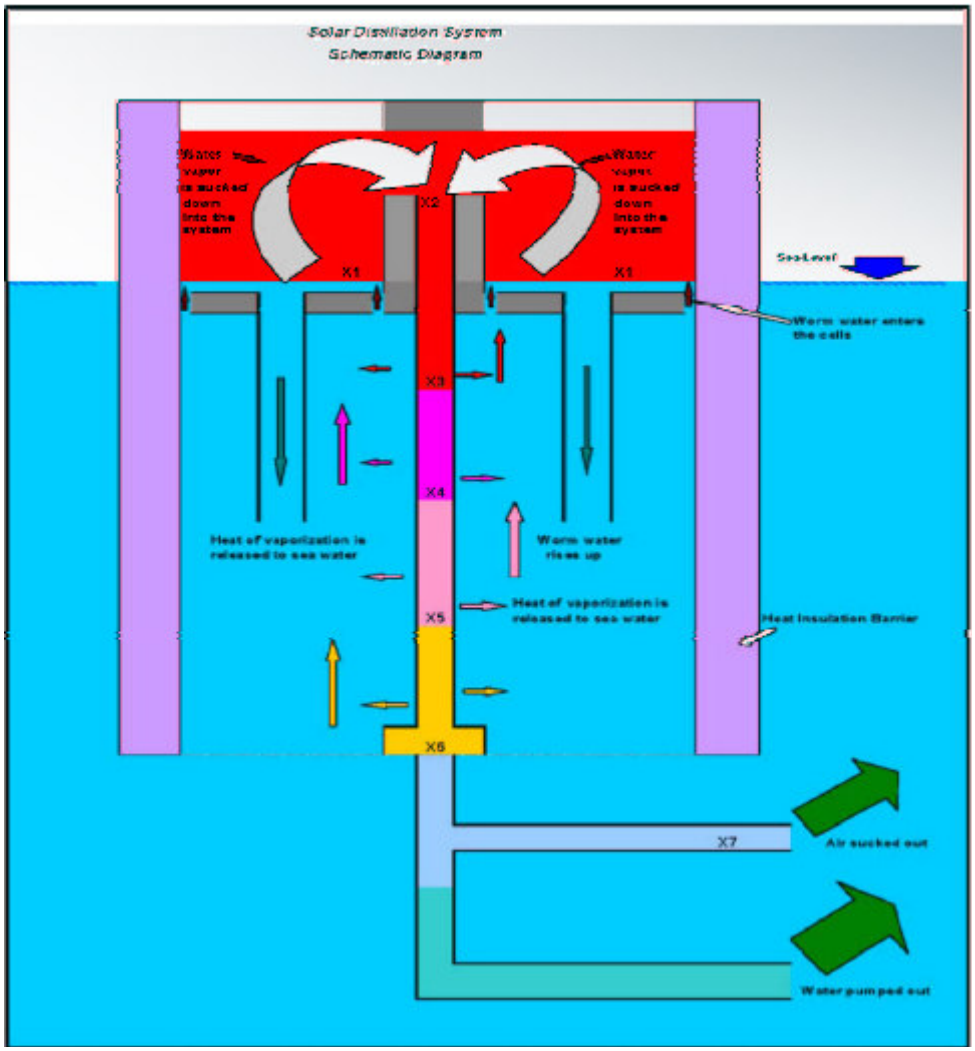

Figure 1. Schematic View of Heat Transfer

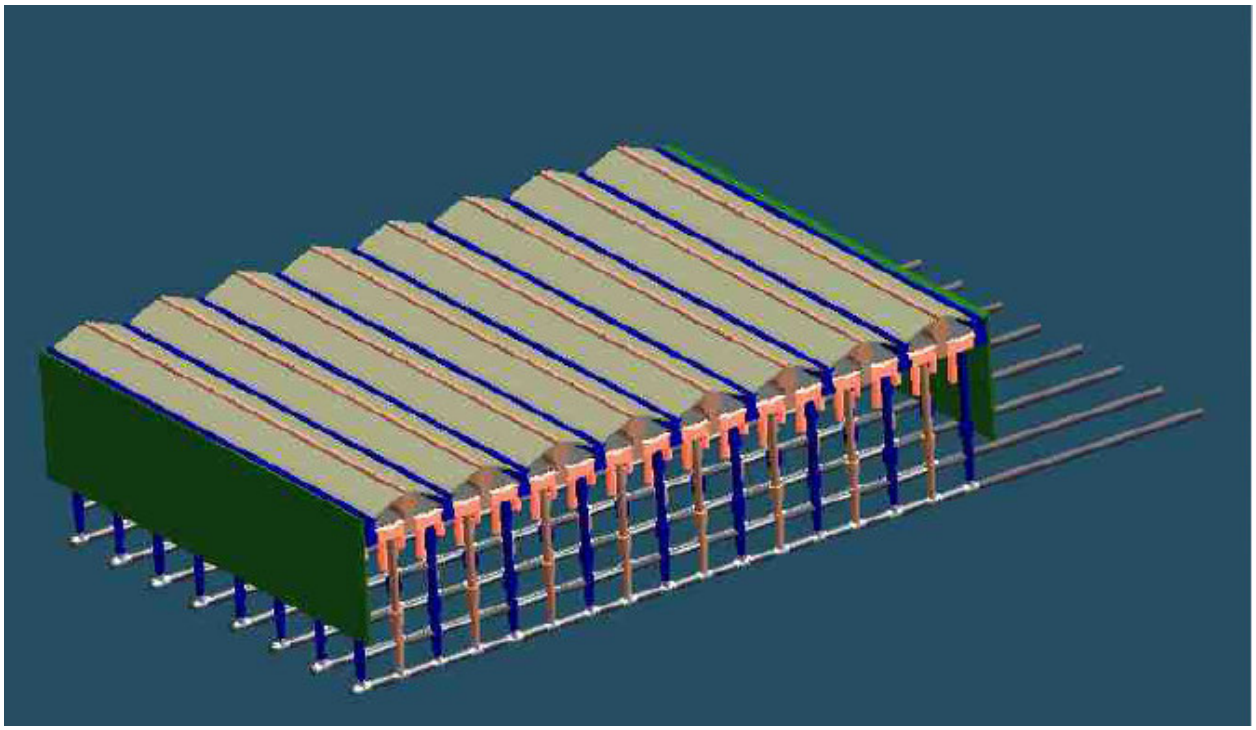

Figure 2. View of Off Shore Plant

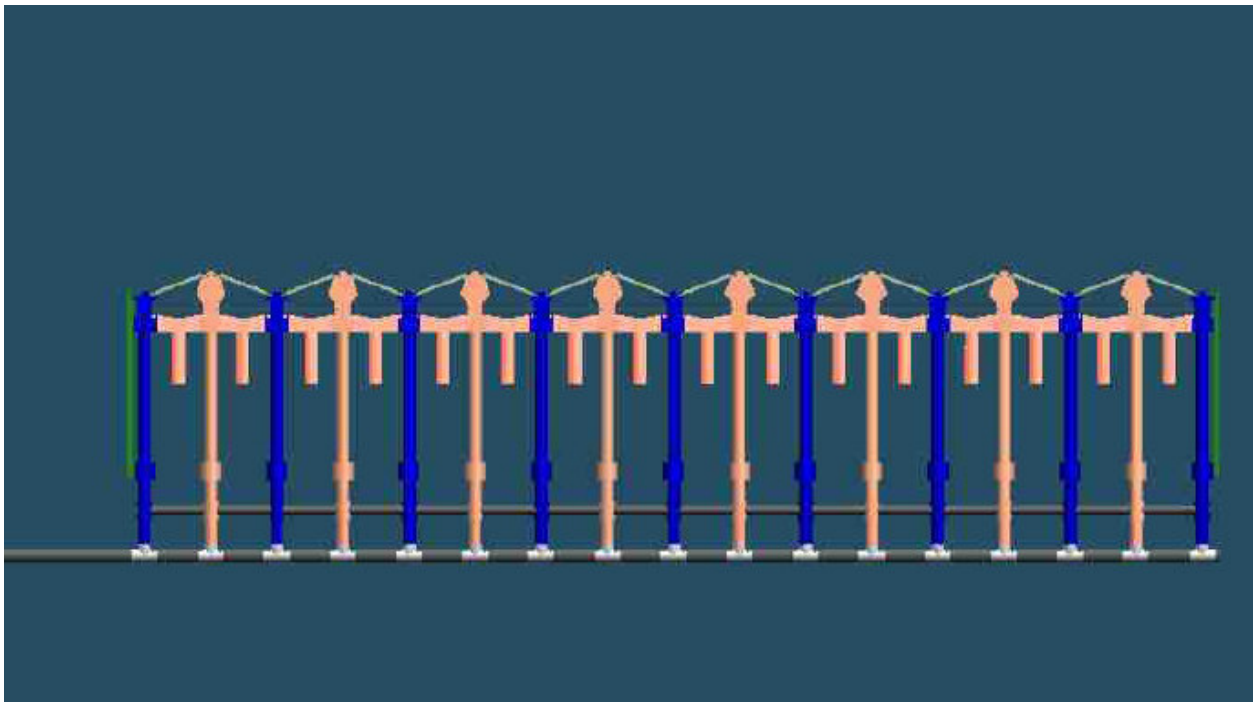

Figure 3. View of Off Shore Plant (Elevation)

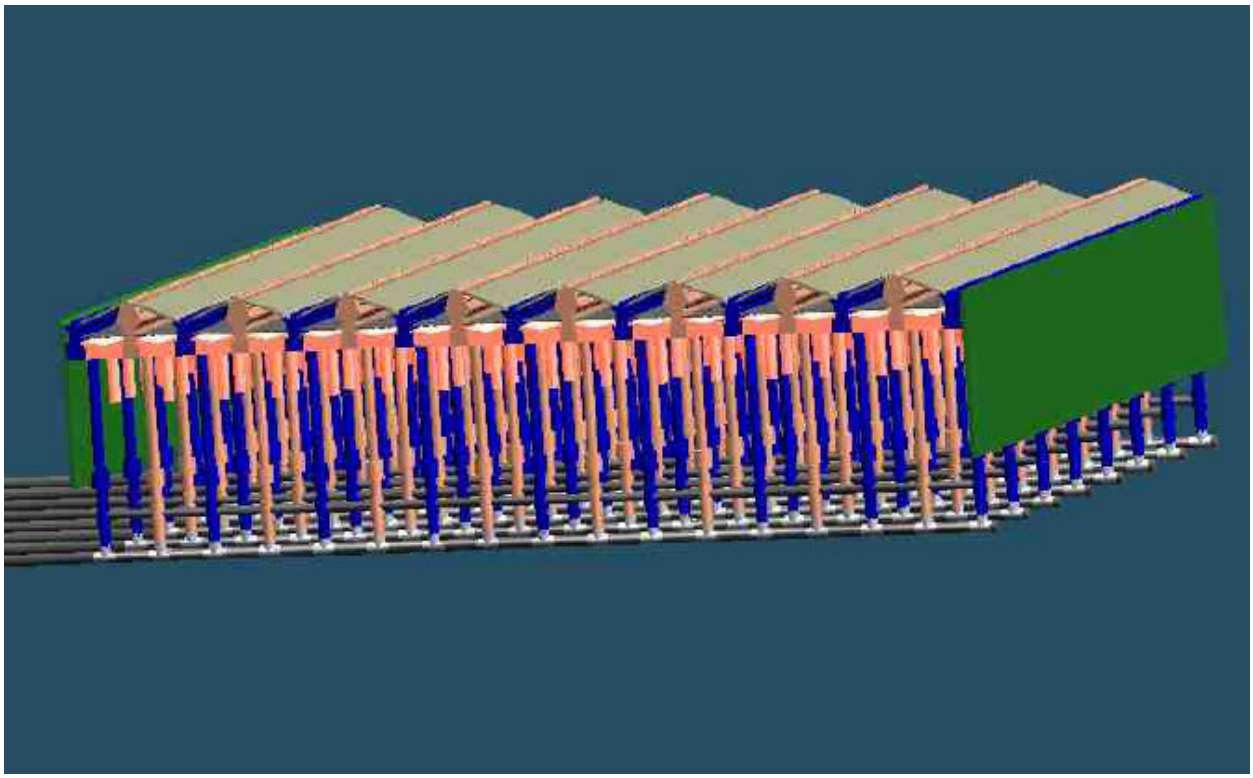

Figure 4. View of Off Shore Plant (Section)

On Shore Plants

Table 4. On Shore Plants

Details, On Shore Plant Production	
From 66,000 Gallons per Day to as high as 2,000,000 Gallons per day	Near the sea shore, easy to operate (ideal for village, township, resorts, manufacturing units, etc.)
By-Product could be utilized as industrial salt/ mineral	No Energy production

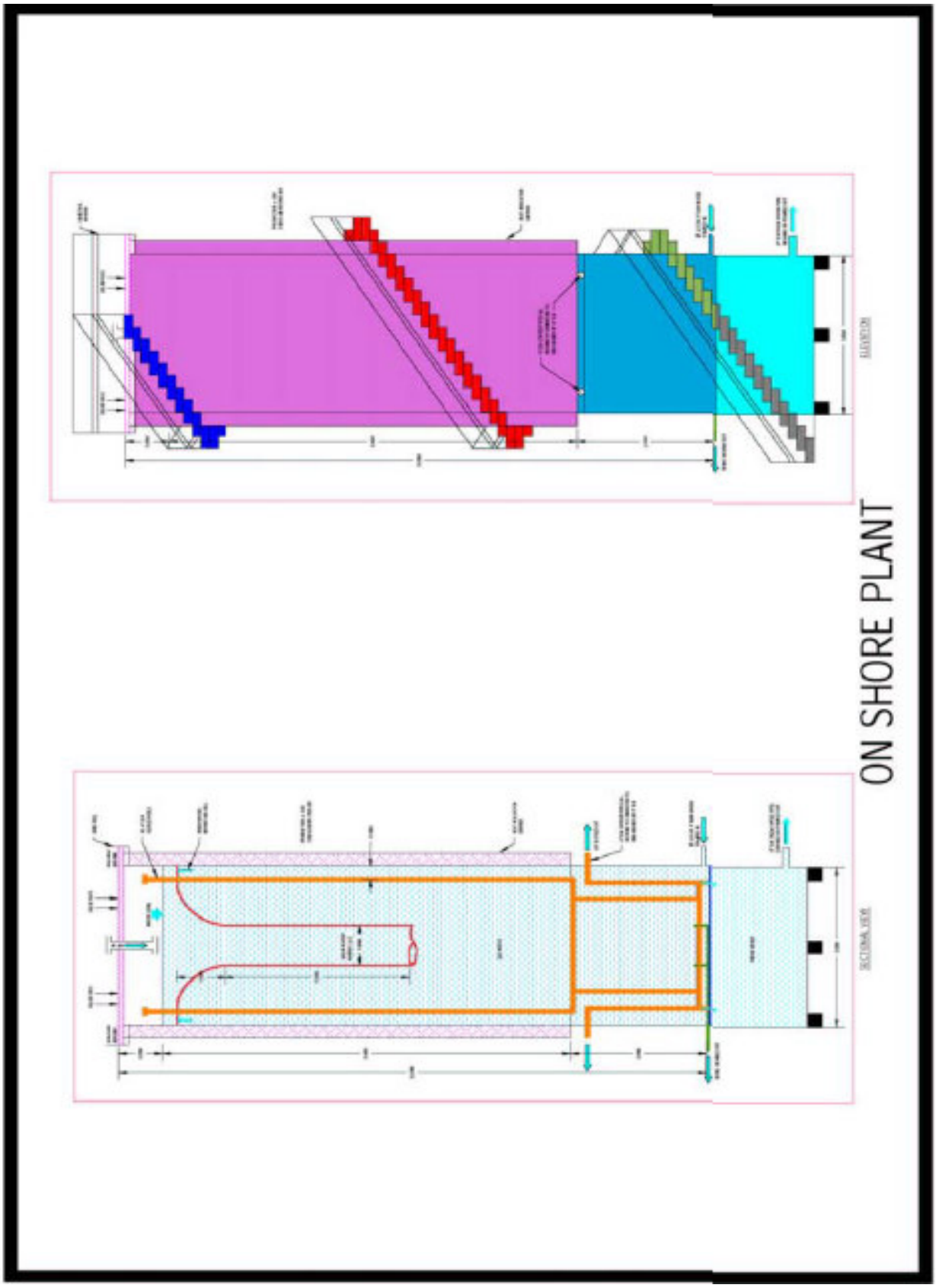

Figure 5. View of On Shore Plant (Elevation and Section)

ECONOMICS

Our technology uses two unlimited natural resources – Solar Energy and Ocean Water, which are virtually free cost. Additionally, it produces fresh water at unbelievable cost - less than US $ 0.05 per 1,000 Liters of fresh water for Off-Shore Plant. This means that the cost of energy would be 1/40 of fossil fuel energy. Further, the by-product of this technology (Energy in the form of Electricity); can be utilized to pay for water distribution system and generate additional revenue.

Off Shore Plants

Table 5. Off Shore Plants (Economics)

Off Shore Plants, Economics	
Minimum Plant Size 400 Sq. Mt. (1 Cu. m/Sec)	Capital Cost of Plant – $10,000,000
Production Cost of Water (US) $0.05 per 1,000 Liters	Return of Investment – Average 20% PA

On Shore Plants

Table 6. On Shore Plants (Economics)

On Shore Plants, Economics	
Minimum Plant Size 100 Cu. m/Day (100,000 liters per day)	Capital Cost of Plant – US $ 250,000
Production Cost of water (US) $0.20 per 1,000 Liters	Return of Investment – Average 30% PA

CONCLUSION

Comparison

There have been several similar technologies implemented in the past to achieve efficient, economical desalination process, without reasonable success. Our method is very cost effective (1/10 to 1/100 of Production cost) compared with other desalination systems (e.g. Reverse Osmosis). Additionally, other proven technology is not capable of providing the large volume of fresh water and energy.

Our method represents a breakthrough among all the past and current technologies as it can be utilized close to coastal line, with free solar energy, and provides vast quantities of a fresh water supply. Also, the useful by-product of energy in terms of electricity adds to the benefits of implementing this technology.

Our method has no adverse impact to environment or to aquatic life and has been proven and approved by the US Patent Office.

Advantages

Implementing our technology will lead to the following advantages: Gradually reducing and eventually eliminating the dependency on fossil fuels; Reduction in the rate of Global warming; Conversion of deserts into oasis (most deserts near the ocean); Production of environmentally friendly energy and cleansing of the environment; Increase in production of food and water, thereby promoting peace around the World; Helps to improve health of millions by providing fresh water at affordable cost; Abundant of water source, independent of rainfall or river flooding; brings new development and culture.

REFERENCES

US Patent No. US 6,494,995 B1 – Solar Distillation System

US Patent No. US 7,127,894 B2 – Solar Thermal Energy Conversion System