ADVANCEMENT IN THE UTILIZATION OF RENEWABLE ENERGY FOR PRODUCTIVE FUTURE WITH AN ECO-FRIENDLY EXHALATION

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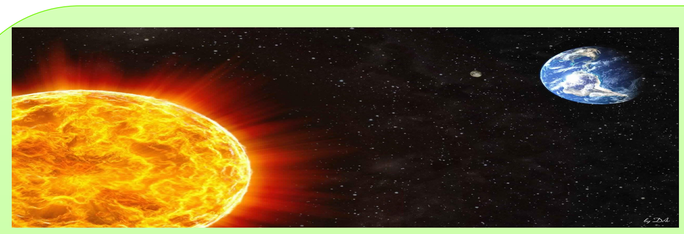
ABSTRACT

The consumption of excessive non renewable energy sources has resulted to impoverishment of the Urban Heat Islands across the world. There is a quick emergence need of viable energy to equalize and satisfy the need for the future population. Sustainable cost effective technologies that are being developed have the ability to long stand with the exhausting efficient resources. The development in the utilization of renewable energy has shaped way out for a productive future. The environmental science is relying more on the new research in the field of applied Atmospheric Physics and Geo Physics.Research in the fields of photovoltaic, eco-friendly plants etc., are finding methods to replace the depleting fossil fuels. The multiple uses of renewable resources are tracked to reach the proportionate needs in every field with high efficiency. The adaptation of solar energy has enhanced the thought for applying in various arenas to satisfy the needy of the habitable Earth. The latest research done on getting the solar energy from space to Earth by NASA, desalination of sea water into a fresh water using solar energy, usage of Jatropha as biofuel , new catalyst produces cheap hydrogen fuel all these gives the advancement in renewable energy sources.These applications successfully explains about the usage of renewable energy sources and highly efficient.

Keywords: Renewable Energy, Ecofriendly, Urban Heat Island, Solar Energy, Jatropha

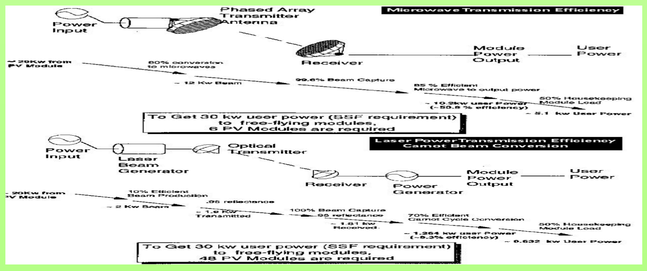
INTRODUCTION

Every object in the world is associated with energy. When a force is applied on an object, then work is said to be done on the object. The work is said to be a transferred energy. Energy plays a vital role in determining all the properties related to the object. The energies we find in the universe will be in the form of renewable and non-renewable energy. As there is an increase of urban heat islands, the necessity for renewable energy is in demand in the present world. Among the renewable energies-the Space Based Solar Power (SBSP), Desalination of sea water using solar energy, Jatropha as a bio-fuel and new catalyst for hydrogen fuel.

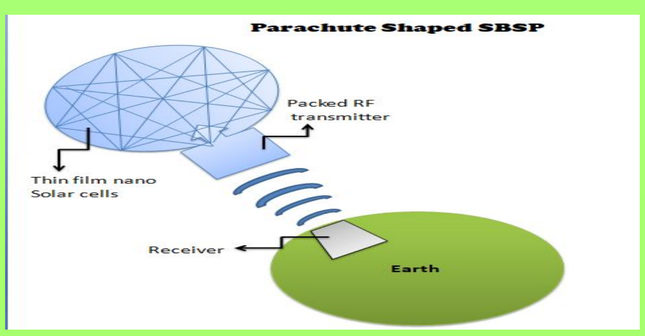


SPACE BASED SOLAR POWER

Sun is a source of thermal energy. This vital source can be used to provide needs of habitat. Solar energy is captured and converted into heat energy, electrical energy etc.,as renewable source. Latest advancements and research has found that capturing Sunlight from directly from Space can provide energy throughout the day. As the sun is shining throughout in space, the energy loss is minimized by Space based solar power.

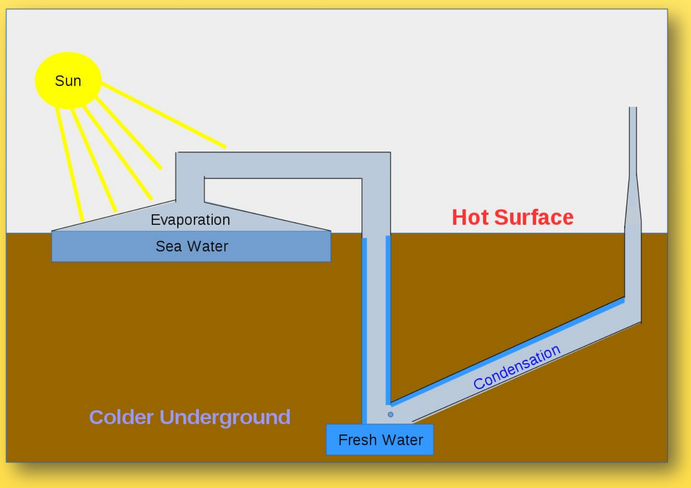


The model designed by various researches consists of large PV to capture solar power and its transformed to earth using microwaves transmitter. The major challenge faced is the large structure,cost,space debris and many. To overcome this efficient small sized structure can be created with reduced solar capturing cells, transmitting modules with stand able in the GEO orbit.



DESALINATION OF SEA WATER USING SOLAR ENERGY

The water is an abundant source in the world. The climate change has been a threat and to provide fresh water resource for billion population in future is a challenge. Fresh water plays a critical role in various human needs mainly agriculture, industrial processes etc.. The 97% of water which is unsuitable for human life system can be transformed to fresh water using solar energy. The desalination of water can be done by membrane and thermal processes. The membrane desalination process can be achieved by electro dialysis, reverse osmosis etc. The thermal desalination process can be done by multistage flash evaporation,vapour compression distillation etc. This desalination process can be used for implementing in desert places too.



NEW CATALYST FOR HYDROGEN FUEL

The hydrogen fuel acts as an alternate solution to fossil fuel based energy sources and gives the tremendous source in renewable energy. To reduce dependency on the foreign oil, to improve the economy, hydrogen fuel can be used as a renewable energy source to generate electricity and biogas. As hydrogen molecules are found abundant in water the photo electro-chemical water splitting technique is used by sunlight to break apart water molecules into constituent hydrogen. Nanotechnology plays an vital role in producing hydrogen fuel. The new catalyst cobalt and nickel oxide with only a fraction of gold nano particles gives a stable bifunctional catalyst to split water and produce hydrogen without emissions.

JATROPHA AS BIODIESEL

Due to the gradual extinction of fossil fuels,biofuel plays an vital role in the usage of automobiles with eco-friendly gas emissions. *Jatropha curcas* is a shrub which gives us a reasonable production of its seeds. The seeds of jatropha contains 40-50% of oil and methyl esters extracted through transesterfication process. This extraction gives the physical properties such as viscosity, density similar to values of conventional diesel and can be used in the existing diesel engine.

CONCLUSION

As global population is increasing proportionally there is demand for efficient renewable energies. The new techniques produced by solar energy, biofuels etc., paves a eco-friendly future for life system.

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REFERENCES

- "Solar Power Beaming: From Space to Earth" -A. M. Rubenchik, J. M. Parker, R. J. Beach, R. M,Yamamoto
- "Renewable resources used for sea water desalination" – Trivedi Hetal K, Prof. Dr. DV Bhatt
- "Gold Doping ina layered Co-Ni hydroxide system via galvanic replacement for overall electrochemical water splitting"- Ummul K Sulthana, James D Riches , Anthony P.O' Mullane.
- " Extraction of Biodiesel from Jatropha oil and performance study of diesel engine with biodiesel fuels"- Ayush Kumar Raghavanshi, CP Singh