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Application of Solar Cells in Three Dimensions to Generate Electrical Power – Solar Ball Column

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ABSTRACT

There is no doubt that the world is moving quickly to the electrical power as one of the most convenient form of energy. The picture is becoming clearer day by day. The biggest two economy: the USA and China are stepping wide steps in this arena. Although the US former management and president withdrawn from Paris Agreement for Climate Change in June 2017. But the new president of the US rejoined the rest of the world and stopped the decision of withdrawn. Similarly, China has constructed the biggest floating solar farm in the world, beside many other promising projects like replacing petrol filled cars with electrical cars during the current decade.

Introduction

This manuscript is trying to bring more light on the importance of replacing the current source of energy. Till now, many parts of the world are generating electrical power using fossil source of energy (oil and charcoal), while the promising future is by generating electricity from solar energy. Instead of using renewable source of energy, counties still use fossil fuels which they import from other countries [1]. Climate extreme changes are only part of the evidence that centuries of burning fossil fuel led to highly destructive impacts on the planet. In this occasion flight emissions affecting the climate change needs to be controlled [2]. It is worth to mention here the heat strike that hit Canada just few days ago [3].

Discussion

a) What is the device?

Solar ball is simply a solar panel in three dimensions. The usual types of solar panels are square or rectangular shape where it placed in an open area to face the sun. Solar ball panels have this shape of ball so it can receive solar rays from different angles without readjustment of the panel (Table 1).

Table 1: Flat solar panel and ball shape solar panel.

	
Flat solar panel	Ball shape solar panel

b) Why it is designed in this way?

The ball shape with three dimensions will give the following advantage:

- Ball shape will give it the advantage of receiving sun rays most of the daytime.
- Ball shape will reduce the high temperature during hot seasons as the rays' angle change with earth movement.
- High temperatures reduce the efficiency of solar panel, but in case of solar ball panels the rays are moving to new cells throughout the day.

c) What is new?

The ball shape panels are not totally new. In fact, it is available in the market, so what is new in this paper? The new idea is to put the solar ball panels in a vertical way so that it looks like the following figure (Figure 1)

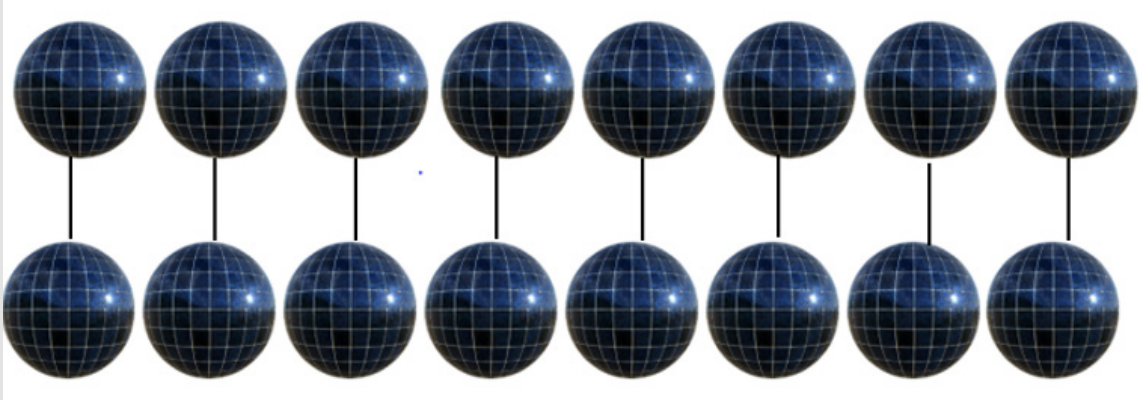

Figure 1: Solar ball panels arranged in a group.

d) Advantages of positioning solar ball panel in this way could be summarized in the following points:

- The possibility of arranging the ball shape panels in a vertical method and this will give more space in solar energy fields.
- It is possible to have two or more ball shaped panel one over the other.
- With enough spacing between the ball shaped panels, it will be possible to avoid the shades to fall over the inferior panels.
- The rounded ball shape forms relatively bigger surface which means generating more energy.

e) Where can this device installed?

The solar ball column is just like the ordinary solar panels. It can be installed in any open area like building roofs, gardens, ventilation space, terries, a balcony or any other open area outdoor. "Energy potential of solar power ranked by land classification, indicating the best place to put solar panels is on croplands and grasslands [3].

Conclusion

This manuscript is a small sign to point the direction for the coming energy revolution. There is still too much to do and many experiments to conduct in order to represent the advantages of this device. The writer of this paper is working to introduce many changes and improvements to bring it to its final stages.

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