

Cloud Energy

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Abstract: In this paper we have stated about solving the problem of electricity insufficiency everywhere. It's an innovative idea for a new type of power plant. It's almost impossible to produce electricity from lighting, so we have decided to take current from clouds. Clouds have plenty of charges stored in it, here we give some ideas to make that charges useful. So here I have made use of Pelletron generator (similar to Van de Graaff generators) to do this job. It uses the principle of electrostatic induction. In this I make a giant pelletron generator in upside-down direction, instead of giving charges to it, it takes charges stored in cloud and increases the charges at the other end. So we can get high voltages of about 30 MV from a single pelletron generator. This pelletron generator are to be placed in mountains it may be seem to be tedious but it is an idea of new power plant, so we have to make such big this construction on mountain so that we could have a constant production of electricity in all seasons.

Keywords: Charge, Cloud Energy, electricity, new power plant, lighting, Pelletron generator.

I. Introduction

1.1 Electricity Need

India is world's 6th largest energy consumer, accounting for 3.4% of global energy consumption. Due to India's economic rise, the demand for energy has grown at an average of 3.6% per annum over the past 30 years. In the year 2013, the installed power generation capacity of India stood at 210951.72MW, while the per capita energy consumption stood at 733.54 KWh. India is expected to cross 950,000 MW by 2030. The total number of consumers is over 146 million. Power requirement will double by 2020 to 400,000MW. At present (2013), the price per unit of electricity in India is about Rs. 4 for domestic consumers, and Rs. 9 for the commercial supply.

1.2 Problems

Now we are living in a current driven world, everything in this world need electricity. Every machine around us needs electricity. So in this condition if we have power deficiency and it causes power cuts. Due to this our day to day life gets affected. This problem is not only in India but many part of the world is in dark due to insufficient electricity. This problem affects mainly students.

1.3 Harvesting Lighting Energy

Lightning is discharge of electrical charges stored between clouds and the earth. A typical lightning bolt produces about 10,000 amps but some bolts have measured well over 100,000 amps (approximately 5 billion joules or about the energy stored in 145 liters of petrol). Even though capacitors today can store huge amounts of electricity, but the time it takes for a lightning bolt to discharge its 1,000,000 kilo-volts of electricity is about 0.2 ms and these large capacitors charges slowly, so it's not possible. You would need many towers stretching 1000 feet or higher spread over a very large area that sees many thunderstorms each year to increase the odds of capturing a lightning strike. Major challenge when attempting to harvest energy from lightning is the impossibility of predicting when and where thunderstorms will occur. Even during a storm, it is very difficult to tell where exactly lightning will strike.

II. My Idea

There is lot of energy in the cloud. That comes out as lightning, goes to ground and get wasted. So it's almost impossible to produce electricity from lightning. Why can't we take current from cloud? So I thought of an idea to take the charges from clouds. We all know about Van de Graaff generator. Similar to that there is another generator with more efficiency called Pelletron generator. In that also we give charges at the bottom and take high voltages at the top. So I have an idea of making a giant Pelletron generator, bring the charges from the cloud down to useful voltages. This Pelletron generator can be placed in mountain so we could collect charges easily.

III. Van De Graaff Generator

The Van de Graaff generator is an electrostatic generator which uses a moving belt to accumulate very high voltage on a hollow metal globe on the top of the stand. The potential difference achieved in Van de Graaff generators can reach 5 megavolts. Here we give voltage at the bottom; the belt carries the charges to the sphere at the top. The increased potential is got from the sphere.

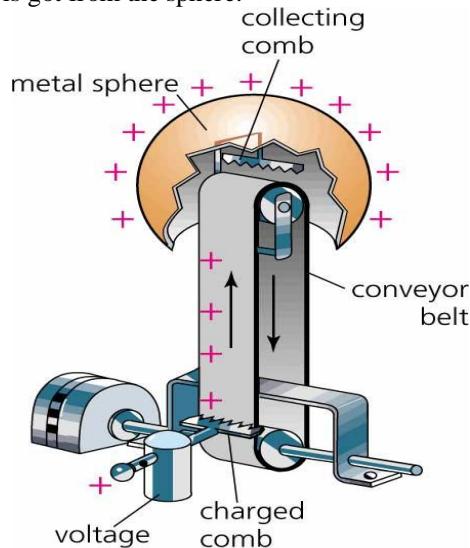


Figure 1.Inside Van de Graaff generator.

IV. Process

Instead of using Van de Graaff generator we could make use of pelletron generator which would be more efficient. It also works similar to Van de Graaff generator. Here I'm going to replace the voltage given at the bottom by clouds at the top, so that we could get the voltages of higher power down. To understand these imagine a big pelletron generator constructed upside down in mountains. As this is constructed in mountains we could get plenty of clouds.

V. Electro static Induction

This is the principle used for transferring charges. When a charged conductor is brought near another conductor the opposite charge is induced on it. It may also be said as redistribution of charges.

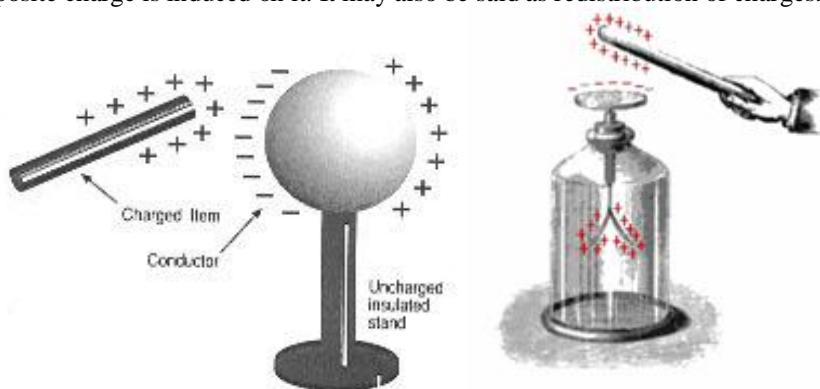


Figure 2.Shows the electrostatic induction.

VI. Pelletron Generator

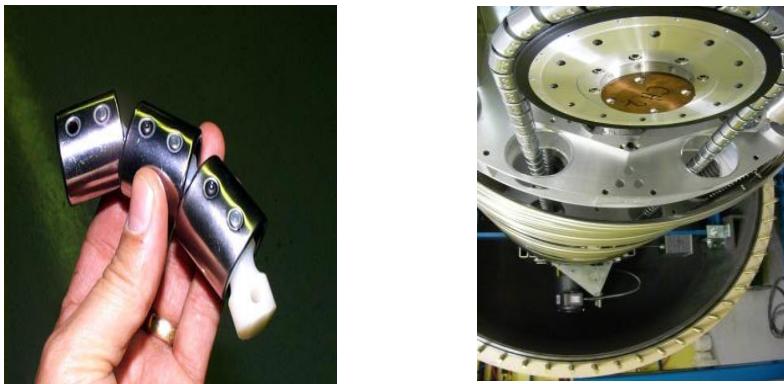


Figure 3.Pelletron generator with conducting links.

As Van de Graaff generator uses non conducting belt it is difficult to accumulate charges and speed of belt is low. So here I use pelletron generator, it contains conducting rods with insulating links. The working is similar to that of Van de Graaff generator. In this the charges are given using Inductor. It carries the charges to the terminal shell. There the charges get increased.

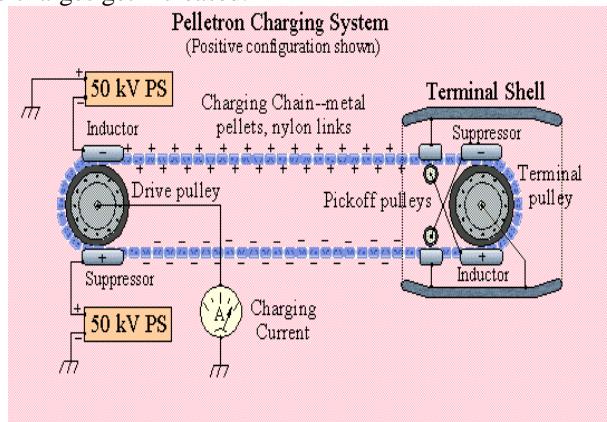


Figure 4.Pelletron generator working.

Here we use a suppressor to take the charges away.300 Pelletron chain assemblies in use in 24 countries as part of the world's most advanced research systems.

VII. Advantages of pelletron

- Insensitive to moisture
- Voltage stability
- Belt operate at high speed
- It eliminated the belt dust problem
- Proven to over 30 MV
- High Efficiency

VIII. Charges from clouds



Figure 5.Inducing charges from clouds.

The bottom of clouds have negative charges, so when we place a conductor it induces opposite charge in the conductor, (+ve charge). So the electron are repelled and it get accumulated at the other side of conductor. We make the pelletron belt to run nearby it, so it induces (+ve) charge on the pelletron belt. The belt takes the charges down to accumulate to produce high voltages.

IX. Overall process

The charges are taken from the clouds using many pelletron generators. The high DC voltages are converted to AC using Power Inverter. Then using transformer the voltage is converted to needed voltage. Then it is connected to power grids and from there to the cities.



Figure 6.Overall process of Clouds Power.

X. Other power plants:

Other Power plants have the following disadvantages.

- Increasing global warming.
- Emitting radioactive substance from nuclear.
- Polluting water and air.
- Creating noise pollution.
- Consuming non-renewable energy.

XI. Conclusion

So this power plant is needed to solve the electrical scarcity and to use the useful energy in clouds. This power plant has the following advantages.

- Eco-friendly
- Continuous
- Renewable
- New type of power generation.

Every Invention is a joke before it is invented.

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