

Harvesting Energy from Lightning Strikes

Authors : Vaishakh Medikeri

Abstract : Lightning, the marvelous, spectacular and the awesome truth of nature is one of the greatest energy sources left unharnessed since ages. A single lightning bolt of lightning contains energy of about 15 billion joules. This huge amount of energy cannot be harnessed completely but partially. This paper proposes to harness the energy from lightning strikes. Throughout the globe the frequency of lightning is 40-50 flashes per second, totally 1.4 billion flashes per year; all of these flashes carrying an average energy of about 15 billion joules each. When a lightning bolt strikes the ground, tremendous amounts of energy is transferred to earth which propagates in the form of concentric circular energy waves. These waves have a frequency of about 7.83Hz. Harvesting the lightning bolt directly seems impossible, but harvesting the energy waves produced by the lightning is pretty easier. This can be done using a tricoil energy harvester which is a new device which I have invented. We know that lightning bolt seeks the path which has minimum resistance down to the earth. For this we can make a lightning rod about 100 meters high. Now the lightning rod is attached to the tricoil energy harvester. The tricoil energy harvester contains three coils whose centers are collinear and all the coils are parallel to the ground. The first coil has one of its ends connected to the lightning rod and the other end grounded. There is a secondary coil wound on the first coil with one of its end grounded and the other end pointing to the ground and left unconnected and placed a little bit above the ground so that this end of the coil produces more intense currents, hence producing intense energy waves. The first coil produces very high magnetic fields and induces them in the second and third coils. Along with the magnetic fields induced by the first coil, the energy waves which are currents also flow through the second and the third coils. The second and the third coils are connected to a generator which in turn is connected to a capacitor which stores the electrical energy. The first coil is placed in the middle of the second and the third coil. The stored energy can be used for transmission of electricity. This new technique of harnessing the lightning strikes would be most efficient in places with more probability of the lightning strikes. Since we are using a lightning rod sufficiently long, the probability of cloud to ground strikes is increased. If the proposed apparatus is implemented, it would be a great source of pure and clean energy.

Keywords : generator, lightning rod, tricoil energy harvester, harvesting energy

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020