

Short Discussion on Energy Harvesting Aided LEO Satellite Communication Network

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Some recent literature on sustainability and green networks has widely discussed the importance of harvesting energy through conventional resources including solar, wind and water turbines. Recently, radio frequency energy harvesting (RFEH) is promising approach towards low powered devices [1]. This technology is specifically aimed to provide connectivity to remote areas where satellite-based sensor networks can assure operational lifetime of satellite by addressing the concerns of environmental issue like global warming as discussed in COP-26 [2]. This idea works very efficient for the places where recharging battery is infeasible. As Low-earth-orbit (LEO) satellites run very close to earth surface with 160km therefore having an energy harvesting aided terminal at earth station can resolve a lot of connectivity issues and maintain quality-of-service (QoS) [3]. Since there is a limitation to harvested energy but even then, this randomly generated energy will be sufficient to keep the communication network alive. Although there is some limited research on power allocation in energy harvesting systems but generally there is very little literature available which discusses the energy storage, consumption, and energy losses of systems involving LEO satellite aided with energy harvesting earth terminal. It will be worth future direction of designing and developing those LEO satellite with earth aided energy harvesting systems which addresses the energy losses.

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