

Sustainable Renewable Energy Power Generation Solution:

Abstract

A sustainable renewable energy power generation solution that will yield a continuous output of 15 KW (more if needed) 24/7. The system uses only naturally occurring forces and is a zero pollution power source. System produces enough energy to enable the use of EV's on a large scale. Each household will produce its own power. The system is constructed out of easily available materials and is cost –effective, durable and requires minimum maintenance. The system uses proven technology and utilizes easily available off the shelf products

Description

Approach: We have approached the problem of sustainable renewable energy from a completely new view point, using sources of nature, largely ignored by the industry till now, to power the system.

Relevance: Our power system is extremely relevant, it not only produces enough power to cater to every possible household need from cooking to air-conditioning to watching TV, but produces enough extra power to effectively re-charge EV batteries during low night time consumption. This is an all-in-one solution.

Innovation: The innovation consists in using technology such as used in vacuum elevators, to produce continuous electricity. Just as in vacuum elevators a partial or soft vacuum is produced in the air-tight system through use of a turbine or vacuum pump. However instead of using current supplied by the mains to power the turbine/vacuum pump, our system uses the kinetic energy of a falling weight. As the weight falls turning a generator (such as found in the auragenG-8500, generates 8.5 KW , 24/7, measure 1ft by 6ins approx..) it lifts an open ended shuttle/piston, as the weight reaches the bottom of the shaft the shuttle reaches the top of its shaft/tube and an actuator seals the shuttle converting it into a piston. Atmospheric pressure is re-introduced into the system. There is now a vacuum of 1 Torr to 27 Torr below the shuttle /piston and atmospheric pressure above, this exerts sufficient pressure to push the piston down and raise the counterweight to its original position. (Note: the SMB-600D Roots vacuum pump can produce a vacuum of 10^{-4} Torr and uses 2KW with a through put of 500 cubic metres/hour.) Thus the system works like a Newcomen atmospheric engine. When the piston reaches the bottom of its shaft/tube, the actuator unlocks the vacuum and gravity can once again pull the counterweight down, other such systems utilize the vacuum produced by this system to create a continuous cycle producing electricity of upto 15KW or more 24/7.

Results: The system is constructed out of polycarbonate and suitable scaffolding, both counterweights and shuttles are in air tight tubes, attached to main chamber containing the generators and turbines/vacuum pumps. The system (generators etc..) is self-cooling, because of rapid creation of vacuum. It is estimated that total cubic volume of a system containing 3 such generating devices will be about 1.5 cubic metres to 2.00 cubic metres, hence using vacuum pump as described above can be emptied of air in about 0.5 seconds, thereby yielding output as claimed of 15 KW (or more if needed 24/7.) I.e., $K.E = 10\text{metres} \times 9.8\text{m/sec}^2 \times 150 \text{ Kg} = 14.7 \text{ KJ}$ if half is lost to efficiency then about 8KW still available , 2 systems generating current, 1 system producing vacuum gives 15KW approx.. of usable energy.

Conclusions: This is the sustainable renewable energy solution that everyone has been waiting for, it is an all-in-one solution that will yield a better life style than we get from the grid and also solve the transport problem by offering a viable solution for transport by EV's.