

# Power Generation from Linear Generator

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**Abstract:** Pedal powered generator is a device that uses human energy to produce electricity for charging a battery. Here a linear alternator is used to generate electricity. The alternator is coupled to a pulley which provides rotary to linear motion by a belt chain-sprocket system of a bicycle structure. The mechanical input is given to the paddle and final linear movement is achieved in the linear generator. Most components of the portable pedal power generator are based on existing inventions, both recent and historic. The real innovation behind this power generator is portability. Therefore, mobility of equipment is of great importance. This innovation brings together the resourcefulness of pedal power generation with the transportation feasibility of a bicycle frame. The integrated unit will generate electricity on-site, and transmit it to the site with pedal power. We think our pedal-powered device will inspire the public to think about the realities of energy production, which may spark new energy solution. In our country it can be used in the villages as useful electricity source for a small family where the family members themselves can charge the battery by paddling for a short period of time each. This will not only provide electricity when needed but also provide a useful way of physical exercise for them. And due to the low initial cost and very low maintenance cost, wide scale application of 'Linear Generator' can be a suitable source of renewable energy.

**Keywords:** Power generation, Linear generator.

## 1. Introduction

From the reference of wave power plant, a linear generator is used to generate electricity in coastal areas, mainly due to the design and unitization of wave as a source for linear motion. Optimum production through present linear generators. Linear mechanical energy requirement that can be gained through weight driven arrangement at wave generation process. For generating power through linear generator without wave energy, additional linear movement required to obtain required generation. Another source for linear movement is obtained through cylinder-piston arrangement that consumes fuel. Pedal powered generators have been of interest at many places where no other alternative electricity generator has been viable. While using pedal power is not a new concept in itself. it has not been successfully used on a wider scale.

By using this pedal powered generator, different types of equipment, such as, TV, radio. CD player etc. can be run by using pedal power. Pedal powered generator is very useful to those areas, which areas do not have electricity connection. The pedal power generator stores energy to a battery

## 2. Objective

The goal of pedal powered generator is to find a fun way to bring energy into the output, reduce consumption, or just to obtain more products out of physical exercise.

Pedal power can supply turnkey solutions or components for larger projects or exhibitions.

## 3. Block diagram

Figure shows the block diagram of the proposed system. It consists of pedal powered rotor, linear generators, converter circuit and battery backup.

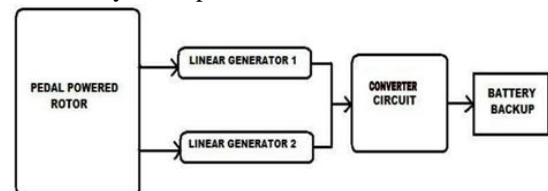


Fig. 1. Bloch diagram

## 4. Linear generator

PM direct-drive linear generators consist of a stator with steel and conductors and a permanent magnet covered translator directly connected to rotor rod. A large generator is needed due to the low speed. A linear

Generator operates at continuously varying speed as the generator changes direction twice per rotation of gear plate. In addition, the speed will vary with the human ability. When comparing different generator designs, a fixed speed is commonly used but variable speed operation needs to be considered. One of the main differences between a conventional rotating generator and a direct-drive linear

Generator is that the stator height and translator height of the linear generator depends on the diameter of the plates at the particular site, whereas the diameter of a rotating generator usually is a free design parameter. The translator is usually longer than the stator.

## 5. Conclusion

This paper presented an overview on power generation from linear generator.

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