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## A PROJECT REPORT ON MAGLEV VAWT

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**Abstract:** This topic focused on the implementation of maglev principle on vertical axis wind turbine so as to use in not only for industrial purposes but also every home can be use renewable energy to enlight their lives and to become a part of healthy society to live in a beautiful , pollution free environment. As we all know the today fossil fuel rates, availability, their impact on environment, if they will use continuously in a proportion now we are using then it will be not possible to live on earth & some peoples already started to plan to live on the moon and mars.....joke so far. In this we used the latest maglev technology which already used in china and Japan rail industry to promote very fast and reliable transportations on maglev trains and with ongoing research its popularity is increasingly attaining new heights. In this we use maglev technology to increase the efficiency of wind turbine. By placing the magnets below the vertical rotor of the wind turbine and on the base of the frame ,so that because of magnetic repulsion the rotor will required very low starting wind speed, and there is very less friction and it replaces conventional ball bearing.

**Keywords:** Pollution Prevention, Wind Energy ,Magnetic levitation

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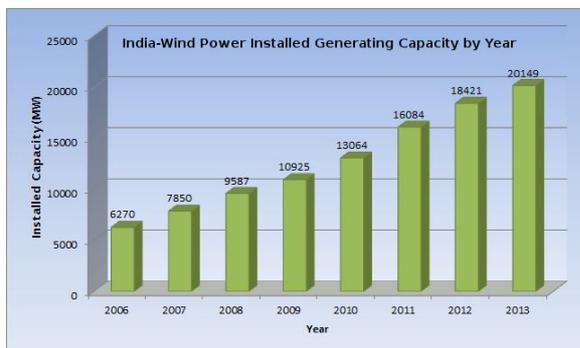
## INTRODUCTION

The importance of preserving the earth's environment and its biological diversity was amply and duely focussed at the meeting of the "Earth Summit " held in june 1992 at Rio de jenerio in Brazil. In 2012, the United Nations Conference on Sustainable Development was also held in Rio, which focused on Pollution prevention

Air pollution comes from both natural and human-made (anthropogenic) sources. However, globally human-made pollutants from combustion, construction, mining, agriculture and warfare are increasingly significant in the air pollution equation. About 400 million metric tons of hazardous wastes are generated each year. In February 2007, a report by the Intergovernmental Panel on Climate Change (IPCC), representing the work of 2,500 scientists, economists, and policymakers from more than 120 countries, said that humans have been the primary cause of global warming since 1950. In the hierarchy of controls, Pollution prevention and waste minimization are more desirable than pollution control

## Wind Energy

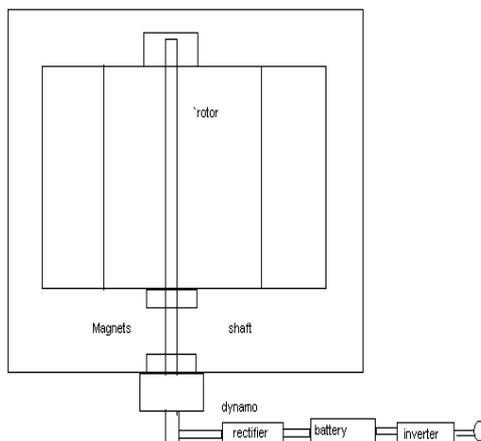
Ministry of New and Renewable Energy or MNRE is a ministry of Government of India.. The broad aim of the Ministry is to develop and deploy new and renewable energy for supplementing the energy requirements of India. In the near future, wind energy will be the most cost effective source of electrical power. In fact, a good case can be made for saying that it already has achieved this status. The development of wind power in India began in the 1990s, and has significantly increased in the last few years. Although a relative newcomer to the wind industry compared with Denmark or the United States, India has the fifth largest installed wind power capacity in the world. In 2009-10 India's growth rate was highest among the other top four countries.



## Magnetic levitation

Also known as maglev, this phenomenon operates on the repulsion characteristics of permanent magnets. Using a pair of permanent magnets like neodymium magnets and substantial support magnetic levitation can easily be experienced

By placing these two magnets on top of each other with like polarities facing each other, the magnetic repulsion will be strong enough to keep both magnets at a distance away from each other. The force created as a result of this repulsion can be used for suspension purposes and is strong enough to balance the weight of an object depending on the threshold of the magnets. In this project, we expect to implement this technology for the purpose of achieving vertical orientation with our rotors as well as the dynamo.



## CONSTRUCTION

The construction of the magnetically levitated vertical axis wind turbine is as follows

It consists of

- 1) Rotor
- 2) Permanent magnets (replacing ball bearing)
- 3) Dynamo
- 4) Battery (12V)
- 5) Inverter

6) CFL

The rotor is mounted on vertical shaft as shown in figure ,spiral shaped blades will be fitted on a rotor and suspended on magnets as a replacement for ball bearing which are normally used on conventional wind turbines. By placing these two on top of each other with like polarities facing each other we get repulsion. The rotor shaft is connected to dynamo which converts mechanical energy into electrical energy. Then battery is connected for storing energy. Inverter is connected to change the current from dc to ac, which power the CFL.

#### **WORKING:-**

Unlike the traditional horizontal axis wind turbine , this design is levitated via maglev (magnetic levitation )vertically on a rotor shaft .

This maglev technology which will be looked at in great detail serves as an efficient replacement for ball bearing used on the conventional wind turbine and is usually implemented with permanent magnets .this levitation will be used between the rotating shaft of the turbine blades and the base of the whole wind turbine system. when wind comes on the turbine blades due to the drag forces the rotor rotates which rotate the shaft which coupled to dynamo which converts the mechanical energy of rotor into electrical energy which goes through rectifier to the battery then inverter is used to convert dc into ac which is used to light the CFL.

#### **Conclusion**

This maglev v.a.w.t. will be reduce the friction as compared to ball bearing used conventional v.a.w.t. The rotors that were designed harnessed enough air to rotate the stator at low and high wind speeds while keeping the center of mass closer to the base yielding stability. The wind turbine rotors and stator levitated properly using permanent magnets which allowed for a smooth rotation with negligible friction. Due to the overall structure and complexity of the of the vertical axis wind turbine, to scale it up to a size where it could provide the amount of power to satisfy an commercial/industrial park or feed into the grid would not be practical.

for The home for the magnetically levitated vertical axis wind turbine would be in residential areas. Here it can be mounted to a roof and be very efficient and practical. A home owner would be able to extract free clean energy thus experiencing a reduction in their utility cost and also contribute to the "Green Energy" awareness that is increasingly gaining popularity.

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