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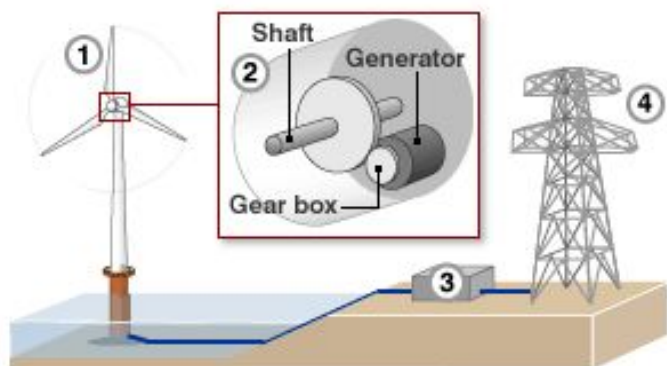
Environmental Science

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Energy Crisis in Hsinchu

Due to the insufficient supply of energy, the city in Taiwan, Hsinchu, has suffered several black outs in the last months. We are planning to use wind power to solve this situation. Wind power is a renewable energy source that use air flow by mechanically power generators for electricity, for this energy source to work out, we need the most basic and important factor: Wind. Wind forms when air move from a place of high pressure to another place of low pressure, wind will appear when the sun unevenly heats the Earth's surface. When warm air rises, cooler air moves in to fill up the space, and this movement is wind. The way of how a windmill or wind turbine works is opposite way of a fan, the fan uses electricity to produce wind, but the wind turbine uses wind to produce electricity. When the wind meets the rotors, the rotors spin and the generator in the turbine will change the wind flow movement into electricity. The electricity is produced in a clean and natural way so wind power is a renewable source.

WIND POWER



(Image of how wind flow be generated into electricity and how the wind turbine associate with wind energy.)

- ① Wind causes blades to rotate.
- ② Shaft turns generator to produce electrical energy.
- ③ A transformer converts it to high-voltage.
- ④ Electricity transmitted via power grid.



We are planning to set up a windmill farm somewhere at the west coastline of Nanliao, there is a large area of grassland which we could use a part for building up wind turbines, we will try to negotiate with the local government for renting the land. We promise to maintain the natural beauty in this area by using the advantage of wind turbines: Each of them does not need large area. We also promise to keep the design of the wind turbines clean and neat, no matter on there exterior look or formation. To save the black outs in Hsinchu, we will need around a hundred of the turbines to reach the need of 180 MW. Besides than just building wind turbines, we might be setting up a wind power museum for proclaim the knowledge and usage of

this kind of renewable source to the residents, as well as advancing tourism in this area of Hsinchu.

Advantages of wind power:

1. The wind can be captured efficiently by modern technology.
2. The wind turbine does not cause green house gases or other pollutants.
3. Although wind turbines can be very tall, but it takes up only a small area of land.
4. Wind farms can be an interesting feature of the landscape.
5. Wind turbines can supply the areas that are not connected to the electricity power grid.
6. Wind turbines have an important role to play in both the developed and third world.
7. Wind turbines are available in a range of sizes which means a vast range of people and businesses can use them.

Disadvantages of wind power:

1. Wind turbines do not produce the same amount of electricity all the time. There will be times when they produce no electricity at all.
2. Wind turbines are noisy.
3. When wind turbines are being manufactured some pollution is produced.
4. Large wind farms are needed to provide entire communities with enough electricity, but sometimes it is not enough.

As you can see, there are still some disadvantages for using wind power, most of them are about the unstable amount of electricity wind turbines produce. Don't worry, Hsinchu is the place which contains the most powerful wind in Taiwan, and we had plan to build them at the coastline, where blows a lot of sea wind.

Conclude the informations in our report, we ensure the local government that wind power will be the fittest renewable source for solving the black outs in Hsinchu. According to the advantages of wind power listed above and the degree of how wind turbines cooperate with one of Hsinchu's most unique features, wind, we can tell you that wind power is the most suitable choice.