

Wind bridle

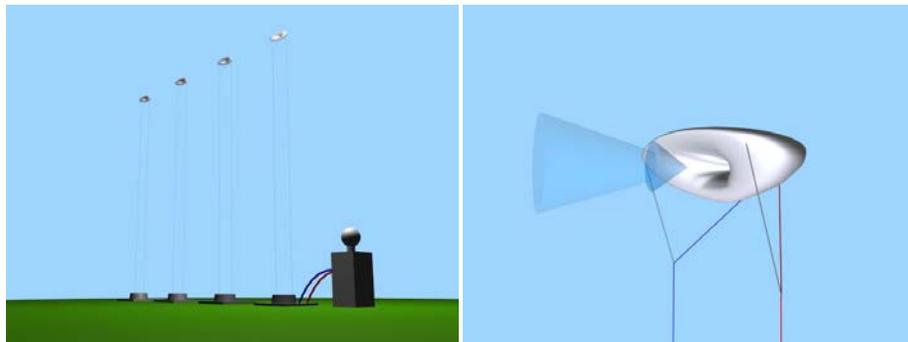
Political and economical precondition of small airborne wind generators

High-altitude wind it's the only one possibility to have enough free energy in any place of Earth for each people. That's a wonderful situation when people can be independent from energy owners. Now we are staying just some steps before.

It means that main attention must be paid to small systems of airborne wind generators to satisfy requirements of each person.

Another reason to make small devices is to save material for electric mains and reduce the losses for transmission.

Wind bridle I. Fly confuser.

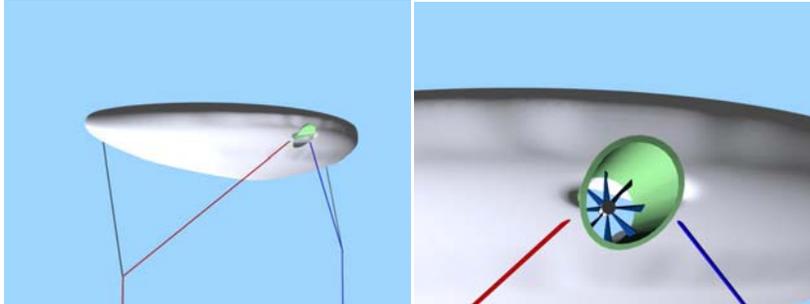


It's an apparatus with aloft placed generator. Special form of apparatus gathered several advantages in one point:

1. It consists of balloon, that can be filled with helium or hydrogen (there is no people on board, means there is no explosion danger)
2. Kite form gives also possibility to use wind for lifting effect.
3. It is also a confuser and can concentrate energy of wind with it help. We don't need a redactor and heavy generator. Energy is already prepaid for direct transformation. Also static blades can be used to transform potential energy of wind to kinetic.

In this scheme there are some tasks to concentrate on:

1. Durability of confuser. It can be on high loading. Here can be used modern composition materials.
2. Stability of kite. The form is quit inconvenient and must be good designed.
3. Electricity comes with different frequency, but this task is common for most AWE- turbines



Wind bridle II. Variable tractin.

Conductors capacity to transfer electricity depend on square of conductor section. The more energy must be transfer the thicker conductor must be used. With the length of 1-10 km and power of 1 kW and more the weight of conductor is not a negligible value. The same problem is with generator and redactor weight.

Different schemes where energy traduces with mechanical means are very instable because of complexity of designs.

The represented project uses pull-push movement of tenses tether. Mechanical force can be produced aloft by different means. I decided to use a so called UFO-Rotor kite. It flies with help of Magnus effect and has on board. A cam on revolving kite makes variable pull of tether and produces work on line generator downstairs.

Advantages:

1. For today investigated materials with the same weight and section can transfer more power through mechanical tension than through electrical one.
2. There are no any devices aloft, that increase the weigh, but the cam. Reduction gear, generator, conductor are eliminated (like in Magenn).

3. Kite is self stable. Complicated control devices are not needed (like in Aeroix)
4. No big area is needed for kite operation (like for KiteGen or Aeroix)

Visible problems to solve:

1. It's quit hard to launch kite. Good wind must be available.
2. UFO-Rotor is quit instable. It can be improved with 3 kites in one set.
3. Cal can also make influence of kite stability.

