

Property of
 FTC Energy, Inc
 All Rights Reserved
 Invented and
 prepared by
 Joe D. Shepard

Air-based Energy Systems Using Standing Wave Amplification



This invention covers using the phenomenon of standing waves to enhance air-based energy creation. A standing wave, if properly organized, interferes constructively with the initial wave. This is also known as a resonant mode of an extended vibrating object.

In simple terms, the wave being sent down an air column is constructively enhanced by a reflected wave if the two waves are in phase. I am not discussing pressure displacement for the sake of clarity.

People are exposed to this when listening to a band in a football stadium, for example. A band member speaking, even shouting, in the center of the field could not be heard over the din of the crowd. That same band member blowing

into a trumpet would be heard by everyone. The sound amplification is because of the standing wave phenomenon created by the shape of the trumpet's horn.

Sound is a mechanical wave that is an oscillation of pressure. The operative word is 'pressure'. For our trumpeter to be heard, the trumpet had to create more pressure than the individual could have created on his or her own.

Wind energy devices such as wind turbines rely on air pressure which occurs by air movement to create electricity. It is, therefore, logical that using standing waves will create greater energy than just using the movement of air alone.

at a desired frequency. This frequency is determined by the shape of the air column and the vibrating elements. When dealing with natural occurring wind this requires some dynamic elements.

However, when dealing with exhaust air from fans, air handlers, etc. the flow rate of the air is known and the vibration issue is simpler to address.

The enhanced pressure created can be driven into a conventional wind turbine or a device that functions in a way that is similar to a common audio speaker.

An audio speaker is no more than

The issue then is causing the moving air to vibrate

