Second Explanation of Electron Exciter and Arc

To further explain the arc. It is said you would have the same amount of power in one coil if the voltage and current were the same as you would have in 24 coils. This would be true. However, when an arc is established, with one coil with the same volts and current there would be little energy. 24 coils increases the voltage and current a little, but combined coils there is a lot more energy. It would be the same power. So the arc is what changes everything.

Here is the reasoning by way of example: Imagine you were out camping and it was a cool night. If you started a fire with one log, the fire from the log would be the same temperature, but not enough energy or heat to keep you warm. So you would decide to put 23 more logs, for a total of 24, on the fire. It would be the same temperature, but much more energy. There would be so much energy or heat you would have to stand back because the energy is multiplied and going out everywhere. It is the same way with the generator. One coil would produce some energy, voltage, and current. But 24 coils would produce a little more voltage and current, but a lot more energy, depending on how the coils are arranged (series, parallel, or series and parallel). They basically become like one coil. The difference with the fire using 24 logs is that the energy is dispersed everywhere. Our generator with 24 coils produces an abundant amount of energy, but is concentrated to one spot, the arc.

In our development we wired the coils so we could cut out up to 5 coils on each side to experiment with what would happen. With 5 to 10 coils bypassed, the voltage and current, which equals power, decreased a little, but the energy decreased a lot.

With carbon arc rods, according to Professor Eagar of MIT, a high frequency arc can become as hot as the surface of the sun, 11,000° F. We have tried carbon arc rods. They are very hot and the arc will melt or vaporize anything on the Earth.

With inert gases, the arc acts more like a fluorescent tube. The tungsten coils in the tube produce heat, but the gases do not produce much heat by themselves. The heat from the coils of the tube heat the mercury vapor in the tube, exciting the electrons in the gas causing an ultraviolet light which is invisible. This causes the phosphorus coating on the inside of the tube to excite the electrons of the phosphorus to give off a visible light. This is all done with a cold arc. So our arc behaves very much the same way, only with much more energy.

Like the three elements to make a fire, I will explain what the gases do in the arc and hopefully explain why there is more energy in the arc besides just voltage and amperage in my next email. We are in contact with 3 different welding companies and colleges so we hope to get a more scientific explanation.