Exhibit 7 Transcript of *Electricity Begins with Atoms*

Youtube restored the original video and it is now listed as private at:

https://www.youtube.com/watch?v=pi-kEpbxOlc

Plaintiff uploaded this video as evidence for trial…

https://www.youtube.com/watch?v=7PuyCijXQgA

Highlighted in blue are the instances of plagiarized terms, phrases, and concepts.

Visualizing Electricity

How can we imagine atoms physically interacting to produce voltage and current?

We start with the hydrogen because it is the simplest atom.

Hydrogen has one electron shell which acts as the surface of the atom.

The shape of this shell is loosely based on the radial distribution function of the electron.

The electron shell changes shape with excitation illustrated by a breathing motion.

These quantum jumps become important in future videos for light and photoelectricity.

99.999% of the electron exists within 430 picometers of the nucleus.

The remaining .001 % of the electron shell is illustrated with tiny radial filaments.

The surface of the electron has no limit on how far it can extend.

If we ignore the tails of the electron distribution and quantum jumping, we can use this model to visualize electricity.

Consider a basic DC circuit.

The circuit is composed of single file ionized hydrogens.

Each atom's electron shell is enmeshed, folded together with its neighbor.

What's going on at the charged terminals?

The negative terminal atoms rotate counter-clockwise.

This rotation illustrates charge.

The positive terminal rotates with the opposite charge: clockwise.

In this example, atoms at the positive terminal rotate slower than those at the negative terminal.

This illustrates the voltage difference between them.

When the terminals come into contact, the one with more momentum drives the one with less.

The propagation of this impulse is current.

Because the electron shells of the atoms are in direct contact, momentum transfers quickly: at near light speed.

Hence, current propagates much faster than drift velocity, the average speed of electrons.

It is important to recognize that this simplified circuit uses ionized hydrogens.

The conducting metals and wires have more complex electron shells: also called orbitals.

The metallic orbital shapes allow multipolar contacts with other atoms.

We hope this visualiztion improves upon electron bead flow and hydrodynamic analogies by using structural knowledge about the atom to imagine electricity.

Please share your ideas on how to improve the model further.