

Watt's Happening? #87

by Don Pettit

for Peace Energy Renewable Energy Cooperative

www.peaceenergy.ca ph 250-782-3882



What is Energy?

Everything is energy. Energy is everywhere. Two revolutionary facts that could change the world. But alas, we seem stubbornly rooted in a 19th century mind set that ignores much of what we have learned over the last 100 years. Maybe its time to catch up with what science is teaching us. Maybe that will help us make better choices.

EVERYTHING IS ENERGY

It's weird, but it's true. Einstein proved it mathematically over a century ago, and then somebody used that math to build a bomb and bang! Yes, E really does equal MC squared! Energy (light and heat for instance) and mass (physical stuff) are just different forms of the same thing.

Then it gets even stranger. Though it seems to us that space and time are very real, the rock-solid matrix in which we are thoroughly imbedded, such is not the case. Science has proven that both space and time are anything but fixed.

Einstein joined them together into "space-time" and then proved that they are relative to the motion of the observer. Speed up, and your time slows down while your space contracts, and visa versa.

This isn't just geeky math stuff, its practical knowledge we use every day. If some big brains didn't understand this "time dilation" effect, many modern inventions just wouldn't work. Like GPS.

GPS satellites travel at 8,700 miles per hour, slowing down their on-board clocks relative to us Earth-bound mammals. Add them all up, and there are a total of six Einsteinian time distortion effects that must be accurately and continuously corrected, or our GPS navigational systems would be hopelessly inaccurate. This weird stuff is actually useful!



Renewable energies like solar and wind power are revolutionary because they are based on energy abundance, not scarcity. It's time to catch up with the modern world. We are long overdue for a complete re-think.

QUANTUM STRANGENESS

Now that we're deep into strangeness, the time has come to talk about the strangest thing of all – the magical world of quantum physics.

Einstein used the new quantum mechanics (new then, old hat and thoroughly proven now) to explain how the photoelectric effect works, how solar panels turn sunlight directly into electricity. For that he received his one and only Nobel Prize.

Quantum stuff gets weirder than weird though, because it strongly suggests that time and space don't actually exist, except as concepts in our own minds. According to quantum physics, nothing exists until we experience it through our senses, and then only as a construct in our minds.

We carry around time and space like turtles wear shells. Handy when figuring out where your socks are or when to meet Joe for lunch, but it's all just stuff we make up with the raw material our senses supply.

I type these words, my fingers touching the keyboard . . . or so I think. Science tells us that the atoms in my fingers and keyboard are 99.9 percent empty space. We don't often think of a physical object as a vague wisp of energy, but that's exactly what it is. Everything that seems solid to us is barely there.


ENERGY IS EVERYWHERE

Renewable energies like solar and wind are revolutionary because they throw away the old paradigm of "scarcity." If energy falls freely from the sky and blows around us in the wind (which it does) and if we know how to harvest this free energy efficiently (and we do) then energy is everywhere, ready for use, not just in certain deposits that can be extracted, controlled, dispensed and sold.

Unlike old-fashioned carbon fuels, renewables are cheap (and getting cheaper), widespread (they are scattered around, and everybody has some), abundant (there's enough to power a thousand North America's) and they last forever. Oh, and it's the cleanest energy ever, too.

Like relativity and quantum science, renewables are a major game changer, but before the game can change our minds have to change too. We need to accept and understand these revolutionary ideas because they open up new and better ways of understanding and doing things, and they are filled with amazing opportunities we have barely dreamed of.

It's called getting up to speed and getting in touch with reality, no matter how strange and unusual they may seem. The sooner we do it, the better off we'll all be. And that's for real.



Bear Mountain Wind Park supplies
pollution-free electricity to 35,000 homes.
Welcome to the 21st century!