

Watt's Happening? #121

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The end of Energy Scarcity



The renewable energies of geothermal, wind and sun are plentiful and clean. Some of each can be found just about anywhere. These solar arrays in Hudson's Hope District Office, and all of the electricity needed to run their curling arena.

Suddenly, the Internet has brought the end of information scarcity. Similarly, the switch to renewable energy will, I believe, bring us to the quick and final end of energy scarcity. Here's how and why.

Remember those distant times before digital technology, when all knowledge was stored in books and libraries? Information was hard to find, limited,

controlled, scarce. Advanced knowledge was in the hands of "experts" who dolled it out for a price.

Now, anyone with a computer or smart phone has instant, speed-of-light access from anywhere in the world, to all the accumulated knowledge and information of thousands of years of civilization. Truly revolutionary, but it happened, and it happened

quickly.

Likewise, the rapid shift to the renewable energies of sun, wind and geothermal will bring us to the end of energy scarcity. Why? Because these new energies are everywhere, and simple devices can harvest them where ever and when ever it's needed.

But is there enough of this free, clean energy to power our hi-tech, over-populated planet? It is

actually and truly POSSIBLE to run everything on energies constantly replenished by natural forces?

Yep! And once fully implemented over the next decade or two . . . or three? it will spell the end of energy monopolies and energy scarcity, and will provide the cheapest, cleanest and most abundance energy ever seen.

GEOHERMAL

Geothermal power is energy harvested from the natural heat of the Earth's molten core. Plants are usually placed where the heat is closer to the Earth's surface, such as along fault lines. But if you drill a hole straight down for four or five kilometers pretty well anywhere on the planet you get a lot of heat that is easily converted to electricity. Geothermal is perfect for steady, base-load energy without storage, the kind big industry and cities need.

The total energy consumption of all the countries on the planet is about half a zettajoule (a joule is a unit of energy equal to one watt-second.

A zettajoule is one with 21 zeros after it). A 2006 MIT study showed that the geothermal potential around the planet is about 13,000 zettajoules, so geothermal alone could provide 26 times more energy than the world now uses.

WIND

Wind power is simple, versatile and very inexpensive to run (Alberta just awarded contracts for 600 Megawatts of new wind development, paying just 3.7 cents per kilowatt-hour, half the cost of new natural gas generation. Cheap! And getting cheaper.)

How much wind energy is there? A 2005 Stanford University study published in the *Journal of Geophysical Research* found that if only 20 percent of the wind potential of the planet were harvested, it would cover the entire world's energy needs. This would cover with wind farms about 0.3 percent of the Earth's surface, much of it offshore where the winds are strong and steady.

SOLAR

**We will all
become our
own energy
suppliers, freed
from controlled
and manipulated
energy scarcity
at last.**

Ah, solar, my favourite. The vast amount of solar energy pouring on to our planet from the sun is roughly 23,000 times more than the total energy humanity is currently using. Capturing just one tenth of one percent of that would give us six times more energy than we consume in all forms today.

A smart phone is a solid-state device that converts a tiny bit of electricity directly into a lot of information. Solar electric modules are solid-state devices that convert sunlight directly into electricity. No moving parts, no fuel, no maintenance, no toxic emissions. That's why solar is now the fastest growing energy source on the planet, and if it isn't already, it will soon be the cheapest too.

Of course, the new world of new energy will use a combination of all these (and many others), as different areas are rich in one form of energy more than another. This mixed variety, decentralized and widely available, will create a much more robust and reliable energy grid than we have now.

And like becoming our own information "expert" at the press of a button, we will all become our own energy suppliers, freed from controlled and manipulated energy scarcity at last.