

# Watt's Happening? #200

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## Welcome to the Future

*Unanticipated changes are sweeping the energy world*



*Eight years ago nobody had the slightest idea that solar would now be the cheapest energy source ever and headed to quickly become the dominant energy source on planet earth. Here we see one of the District of Hudson's Hope solar arrays under construction (top) and the finished array*

*now powering their waste water treatment facility and much of their street lighting at close to zero operational cost, with no moving parts or emissions. It will do so for at least the next 40 years, saving the District hundreds of thousands of dollars in avoided electrical costs.*

**W**ow. Congratulations to . . . myself! This is my 200th *Watt's Happening* column. A big thanks to my many loyal readers and to Peace Energy Renewable Energy Cooperative and their 600 members for sponsoring the writing of these articles. And to the Alaska Highway News and other publications for faithfully publishing them every two weeks, helping to get the good news about renewable energy out to as many people as possible.

And another even bigger wow: a lot has changed in the energy scene since I started writing *Watt's Happening* eight years ago. A lot!

### **ALL RENEWABLE IS POSSIBLE**

Eight years ago, researchers were just beginning to think that maybe, just maybe, the entire world could be run on nothing but renewable sources of energy like wind, solar, hydro and geothermal. Now we know for sure it is possible, many times over.

Back then, solar was just coming on to the energy scene. Experts projected that maybe in 50 years it might provide 1% of the world's energy. Now it looks more like 30% in 30 years...or less.

Nobody foresaw that solar would now be the cheapest energy the world has ever seen and spreading around the world to the tune of millions of new solar

roofs every month, accelerating exponentially.

All the predictions were wrong. That's because energy models have always been based on a world run by fossil fuels and nuclear, with other energies creating only minor changes. Way, way off.

We are now looking at an all-new energy world that eight years ago would have seemed like science fiction. Well, that sci-fi world of plentiful, inexpensive, widely distributed super clean energy from wind, water, sunlight and the heat of the earth is arriving right now.

## **ELECTRIC TRANSPORTATION**

Who would have thought eight years ago that millions of people would be zooming around in space-age futuristic high performance zero-emission vehicles that costs pennies to run and require essentially no maintenance for decades? And that they could be charged with a solar array at home for exactly zero cost? And that they would be the safest, coolest, highest performance vehicles ever made?

In just a few years, vastly superior electric transportation will wipe gas-guzzlers off the road, almost overnight. Another massive change, totally unanticipated.

## **ELECTRIFY EVERYTHING**

Eight years ago we thought ya, sure, renewables might be important some day but we will always have to burn stuff to make energy, wont' we? I mean, what do we do when the sun isn't shining?

Nope. We don't need to burn stuff. We don't need conventional fuels, we don't need biofuels, and we don't need nuclear.

We can literally electrify everything, and generate all that energy with renewables.

Energy storage? That's another unanticipated mega-growth industry sweeping the world. Storage

tech, from lithium batteries to hydrogen from water and clean electricity, is solving the storage problem as we speak.

There are four main energy sectors: energy generation, transportation, buildings and heavy industry. They can all be 100% electrified. The first three are relatively easy. The last one will take care of itself as industry becomes more efficient and green to compete globally.

For transportation, we are going to EVs and hydrogen fuel cell vehicles. For buildings, we insulate them better and heat and cool them, and heat our water too, with electric heat pumps. Stoves are going induction.

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It turns out when you electrify everything, you reduce overall power demand by about 60% because of the efficiency of electricity over combustion. (That includes the cost of mining and drilling, transporting, and refining conventional fuels, including uranium, about 12% of all energy needs worldwide.)

When you need 60% less energy overall, your costs go down by 60% too. Not to mention the health care costs of the estimated 7 million air pollution deaths per year linked directly to combustion emissions.

Everything I have just mentioned, and I have only scratched the surface, was all science fiction just 8 years ago. Guarantee: the next 8 years will see sweeping changes yet to be imagined, and its all headed one way:

ultra-low carbon, clean and renewable.

And thank goodness. With climate chaos kicking in, it's all in the nick of time.

Thanks for reading *Watt's Happening*. It's time for cautious optimism. We're headed in the right direction, at last.