

Watt's Happening? #104

by Don Pettit

for Peace Energy Renewable Energy Cooperative

www.peaceenergy.ca ph 250-782-3882



CLIMATE CHANGE: *5 things you need to know*

(Inspired by National Geographic magazine, April 2017, "Climate Change: 7 things you need to know.")

The world needs energy, lots of it, and billions need much more than they have. But the way we make and use energy is changing the climate of our planet in profound and dangerous ways.

Here are five things we all need to know about climate change:

ONE: THE WORLD IS WARMING

The heat waves of last year broke all the records, including the records set the year before, which broke the records set the year before that.

Glaciers are melting. Ice caps are disappearing. Sea levels are rising. Oceans are warming and acidifying. Permafrost is thawing.

The world is warmer now that it has been in at least the last one thousand years. Changes that have usually taken hundreds or thousands of years are happening in a single human lifetime.

Climate change is not a scientific conspiracy or a hoax. It's happening, it's real.

TWO: IT'S BECAUSE OF US

Natural variations in the climate cannot explain this rapid change in temperature. But increases in the levels of carbon dioxide and other "greenhouse gases" can.

You've all seen the graphs: temperatures bump along nicely for thousands of years, a bit up, a bit down,



We do not have to destroy the planet to make a buck. In the U.S., solar power now employs more people than coal, oil and gas combined. Here, a crew installs a Peace Energy Cooperative solar array at the Demmitt Hall in Alberta. (D. Pettit photo)

and then wham! Around 1950 things take off. Carbon dioxide emissions start to spike, up, up, up, right along with global temperatures. Cause and effect? You bet.

And where is all that carbon dioxide coming from? Burning. Burning forests, burning fuels. Billions of us. Clearing land. Driving cars. Flying around in airplanes. Filling landfills and oceans with use-once-and-toss junk.

Oh, it's us all right.

THREE: WE'RE SURE

Except for about one in a thousand, all climate scientists now agree: carbon emissions cause global warming, and human beings cause carbon emissions.

When we burn a carbon-based fuel, we get heat and lots of carbon dioxide. I won't bother you with the exact number of megatonnes of carbon fuel we are burning each minute of each day around the world, but rest assured it is immense. More than enough to quickly change the climate of an entire planet.

Scientists have taken a keen interest in this for some time now, collecting both global temperature data and greenhouse gas concentrations with thousands of weather stations, weather buoys, ships and satellites. We're sure.

FOUR: CLIMATE CHANGE IS DEFINITELY NOT GOOD

World wide catastrophic climate events are definitely on the rise – ask any insurance company. Climate change doesn't directly cause a particular climate event, but it loads the dice in favour of more extreme weather.

Extreme heating events, (like the heat wave that killed some 70,000 people in Europe in 2003) once were 500-year events. Now they're 40-year events. More heat means more, bigger forest fires too. Sound familiar?

With more heat energy in the air, storms are more violent. As the air becomes warmer, more moisture is

removed from the land and oceans and added to the air. Where rain is lacking, droughts become worse. When rain or snow falls, it's more likely to be extreme. Think of the floods in Paris, or Calgary.

This is not something that will happen to our children's children. It is happening to us. It is happening now. And it's happening sooner and more quickly than scientists (always a cautious group) had predicted.

We have all begun to pay for climate change, right out of our pockets. Hundreds of thousands have paid with their homes, their futures, and many with their lives.

FIVE: WE KNOW WHAT TO DO

We no longer need carbon fuels. Fact: we can power everything, far, far into the future, with limitless renewable energy. No new technologies are required, and with modern manufacturing, the transition could be measured in decades, not centuries.

We do not have to destroy the planet to make a buck. In the U.S., solar power now employs more people than coal, oil and gas combined. There are better ways, and we know what they are.

We must make and conserve energy with intelligence and wisdom. We need a very rapid change to renewables. This requires real leadership, especially from the top. We all need to make smart energy choices with our pocket books and our votes.

We can do this, and we can do it now.

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