

Watt's Happening? #204

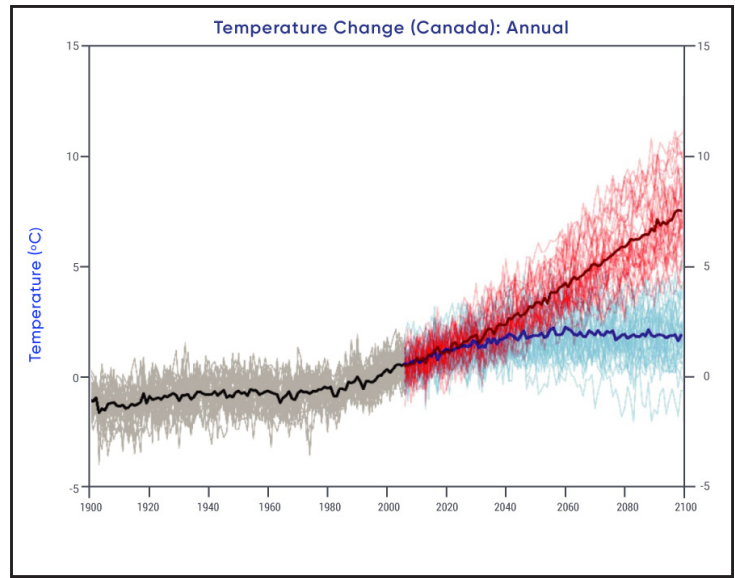
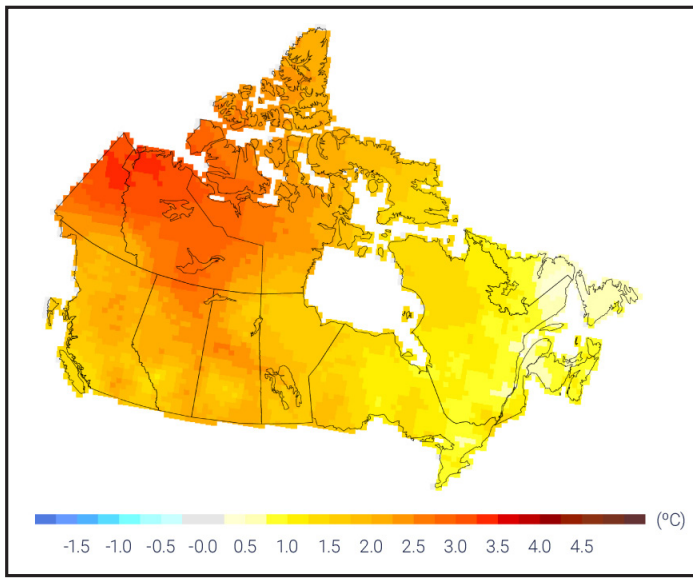
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WARNINGS about WARMING



This shows the observed changes in annual temperature across Canada between 1948 and 2016. Canada's climate has warmed and will warm further (see the next graph), driven by human influences, mostly carbon dioxide emissions from burning fossil fuels and changes in the land surface (land clearing for agriculture, urbanization, etc.) Both past and future warming in Canada are, on average, about double that of global warming, and Northern Canada will warm even more than double the global rate. Massive reductions in emissions over the next twenty years can slow and then reverse the warming. (Canada's Changing Climate Report, June 2021.)

The graph above shows the projected annual temperature change for Canada this century. Grey shows historic levels, red shows the "business as usual" high end greenhouse gas emission scenario, and blue the low emission scenario. (The thin lines show results from individual models and the heavy line is the multi-model mean.) The best case projection requires global emissions to peak almost immediately with rapid and deep reductions thereafter. The worst case scenario is catastrophic, rendering many areas of Canada essentially uninhabitable. (Canada's Changing Climate Report, June 2021.)

Sitting in my hot little home office, with temperatures headed for 40 C. over the next few days, it's hard not to worry a bit about climate change.

Global warming sounds kind of nice, especially to folks who live in the north as I do. The more accurate terms "global heating" or "climate crisis"? Not so nice.

Globally, nine of the hottest years on record have occurred in the last ten, and it looks like this year is headed to break that record again. Changes predicted by the experts for the end of this century are beginning to happen now.

As the World Meteorological Organization secretary general recently put it, "these are more than just statistics. Increasing temperatures mean more melting ice, higher sea levels, more heat waves and other extreme weather, and greater impacts on food security, health, the environment and sustainable development."

POWER TO THE PEOPLE

During this week's heat wave, British Columbia broke all records for electricity consumption, peaking at 7900 megawatts (MW) this past week.

To put that in perspective, all of BC's

hydropower totals 11,880 MW. Add in about 500 MW of Peace Region wind power (the only commercial wind power in the province, a tiny bit of our wind potential), and we have a grand total of 12,381 MW for the province.

That's how much power these facilities could provide if they were all working perfectly at their maximum rated capacity – which never happens.

Something called the “power capacity factor” gives a more realistic picture. This factor takes into account down time for repairs, low water levels, and other factors that reduce the amount of power actually available over time. The official BC Hydro capacity factor for hydro electricity is 60% (coal is usually considered to have a capacity factor of 80%, really good wind power about 40-50%). So in reality the power we can expect to have at our disposal is closer to about 7300 MW.

So this week's record of 7,900 MW probably had somebody scrambling to pull power in from elsewhere! (cheap coal power from Alberta?)

Too bad BC shut down both its budding wind and solar industries about 10 years ago. If we had let wind and solar grow here as they had wanted to, we would now have at least another few thousand megawatts of wind and solar power on line, not to mention two new and growing clean energy industries with tens of thousands of permanent jobs.

And solar, since it is generated during the day when it is most needed for cooling, would be an even better fit than wind or hydro. Roof top solar even better, since it's generated right where it's needed with no transmission losses.

Today across BC there are less than 4000 roof top solar arrays. Pitiful. Many provinces in

China and US states are each installing that much solar every evening.

Bad politics making bad choices makes for bad outcomes, and global heating is a very bad outcome.

SORRY FOR THE RANT

Maybe it's the hot weather pushing me over the edge, away from my usual cautious optimism. BC certainly deserves some credit for its energy efficiency grants, electric vehicle subsidies and its carbon tax, and the new Federal Greener Homes program shows promise (up to \$5000 for a home solar power system! check it out!) but these are all nowhere near the scale of action now required.

A new report from the International Renewable Energy Agency has put a number on the scale of action needed to keep the climate crisis at bay: US \$4.4 trillion in renewable energy infrastructure needed annually until 2050. That's a lot of cash, but a small fraction of the world economy and much less than we now spend on war and weapons.

The pandemic has proven that immediate and extreme global action is possible and that the money, the intelligence and the technology are all available when we really need them.

It has shown us that the human race is amazing: smart, resourceful, adaptable, and able to communicate and cooperate like no other species on earth.

As we face this next global crisis, the climate crisis, business as usual and power politics will have to take a back seat to necessity . . . and a back seat to survival.

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