

CLIMATE CHANGE AND LOCAL ACTION



Dr. Alan K. Betts

In December 2021, I reviewed how little progress was made at the Glasgow COP26 talks on reducing carbon emissions that are driving extreme climate change. The

fossil empire kept the discussions well under control, since burning all the fossil fuels is the key to their trillions in profits. So let us review the climate disasters and extremes of 2021, for which the fossil empire and business-as-usual capitalism bears responsibility. U.S. greenhouse gas emissions rose 6.2% last year compared to 2020 (which was affected more by the coronavirus), and oceans' temperatures reached their highest level on record.

Wildfires, hurricanes, tornadoes and a winter storm and cold wave were among 20 weather and climate disasters in the U.S. last year that cost \$1 billion or more, totaling \$145 billion and killing 688 people, according to NOAA. Specific events include extreme temperatures in the Northwest U.S. and Canada, wildfires and drought in the West, Hurricane Ida, three separate tornado outbreaks in the South and central parts of the U.S. In addition, unusually cold temperatures in Texas in February left millions of people without electricity, but successfully destroyed refineries. Hurricane Ida alone did more than \$60 billion in damages as it targeted both the oil wells along the Texas and Louisiana coasts, and the NY-NJ urban infrastructure and financial institutions that are funding the destruction of the Earth by the fossil fuel companies.

Extreme records for temperature are falling globally every year. July 2021 was the world's hottest month: 1.67oF (0.93oC) above the 20th-century average. The event in late June in the northwest U.S. and Canada was described as "most anomalous regional extreme heat event to occur anywhere on Earth since temperature records began" (weather historian Christopher Burt, author of the book *Extreme Weather*). The forest town of Lytton, B.C. on June 29, 2021 burnt down as temperatures rose to 121oF (49.6oC). This set a new high temperature record for Canada, a stunning 8oF above the previous Canadian record. Across Washington State, many other records were also broken by 8oF. The



In February 2021, Texas experienced some of the coldest temperatures in parts of the state in more than 100 years. (eyeopeningtruth.com)

world's highest (and North America's highest) reliable temperature at 129.9oF degrees (54.4oC) was again reached in Death Valley on July 9, 2021. As I write, Onslow, a small coastal town in Western Australia, registered 123.3oF (50.7oC) amid a severe heat wave, setting a new record for the southern hemisphere. In contrast here in Vermont a huge rain, ice and snow storm covers the eastern U.S. and Canada.

The climate of the past is moving into history and the practice of forecasting new climate extremes before they actually occur is extremely difficult. To those with a dark sense of humor, it is almost funny because we refuse to face what humanity is actually doing. One new pretense for example is using artificial intelligence and big computers for forecasting, but the reference information is necessarily historic! The deeper paradox is that the Earth seems now to be selecting strategies to destroy fossil infrastructure to protect its interests. This is obvious to indigenous people, but it is heresy to capitalism, which thinks it is smart to make a lot of money exploiting and destroying the Earth.

The February freeze in Texas is a good example. This originated in the stratospheric oscillation over the North Pole, propagated down into the Arctic troposphere and then southward as a series of freezing blobs that sat over Texas, freezing and destroying infrastructure for two weeks. Texas had never seen anything like it, and its infrastructure was not winterized. Much of the electrical power system shut down (as it is largely iso-

lated from the U.S. grid), and estimates of the total damages were \$195 billion (which I note is larger than the total U.S. damage figure for 2021 above!). But from the Earth's perspective, the real target was the Texas oil refineries, which suffered more damage from this February storm than any major hurricane.

The extensive fires in North

America are increasing the risks of devastating mudslides across large areas. The Dixie fire in California alone burnt nearly a million acres (400,000 hectares) and studying the landslide impacts on this scale is a huge measurement and forecast issue, as it depends on soil type and vegetation coverage, as well as rainfall intensity. Fires can reduce the permeability of the soil surface so that subsequent intense rain rates form streams that carry soil and rocks downhill generating mudflows. In landscapes which were forested this process can be delayed until the tree root systems decay, which may take a few years. The extreme temperatures in British Columbia in late June and into July led to many fires that burnt and destabilized hillsides. Then a huge storm in mid-November 2021 from an atmospheric river off the Pacific dumped a month of rain on the region in two days. This generated massive mud and debris slides that closed the Trans-Canada Highway and national railway line. To us a 'supply-chain interruption' but useful from the Earth's perspective as British Columbia is mining and liquefying natural gas to speed the destruction of the climate. We are moving into a new era of long-term consequences from

our destruction of the Earth's climate system for profit. Another different example is that a recent detailed global study shows that the anthropogenic intensification of daily rainfall extremes has a 'surprising' negative global economic impact. Our relatively simple economic models do not yet monitor local daily rainfall.

In sharp contrast, I have been exceptionally busy for two months taking over and planning the repair of a local community solar array. This small 150kW array was set up in 2015 by the Clean Energy Collective (CEC) by selling 300W panels to fifty members of the community. I myself own twenty panels (out of 684). We were promised twenty years of renewable electricity credits through the utility Green Mountain Power, who takes the entire production. We the community investors were doing it to support the transition to renewable power, but CEC was doing it for short-term profit, not the long-term interests of the Earth. It stripped all funds it could from panel owners, long-term escrow accounts, stopped maintenance as inverters failed and then filed for bankruptcy for the three arrays in owned in Vermont. I noticed power production was down in the summer of 2021, and initially I thought it was the cloudy summer. As soon as I heard of the bankruptcy filing, I did a deeper analysis comparing with other Vermont sites. I found a sharp 25% drop occurred in May 2021, when in fact two inverters had failed (out of seven). I took over the array on behalf of our West Haven Solar Array Community, and we are developing a long-term strategy that is in the interests of the Earth.

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A long-term strategy that is in the interests of the Earth is being developed for the West Haven, Vermont 150kW community solar array. (Alan Betts)