

Last year I discussed the climate crisis and the extreme events we were seeing. I commented that it seemed that the living Earth system was taking charge, rather than let human power and greed destroy much of life on Earth. Rather 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 of 2021, for which the fossil empire and business-as-usual capitalism bear responsibility. US 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, driving stronger storms.

Wildfires, hurricanes, tornadoes and a winter storm 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 US 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.

Extreme records for temperature are falling globally every year. July 2021 was the world's hottest month: 1.67°F above the 20th-century average. The event in late June in the northwest US and Canada was described as "most anomalous regional extreme heat event to occur anywhere on Earth since temperature records began" (weather historian Christopher Burt: *Extreme Weather*). The forest town of Lytton, B.C. on June 29, 2021 burnt down as temperatures rose to 121°F. This set a new high temperature record, a stunning 8°F above the previous Canadian record. Across Washington State, many other local records were also broken by 8°F. The world's highest temperature at 129.9°F degrees was again reached in Death Valley on July 9, 2021. This January, Onslow, a small coastal town in Western Australia, registered 123.3°F, setting a new record for the southern hemisphere.

The climate of the past is moving into history and forecasting new climate extremes before they actually occur is extremely difficult. One reason is the Earth appears to be selecting strategies to destroy fossil infrastructure to protect life on Earth. This is obvious to indigenous people, but it is heresy to capitalism, which thinks we are smart to make a lot of money exploiting and destroying the Earth.

The February 2021 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 2 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 isolated from the US grid), and some estimates of the total damages reached \$195 billion (larger than the total US damage figure

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 and studying the landslide impacts on this scale is a huge task 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 BC is mining and liquefying natural gas to speed the destruction of the climate.

In sharp contrast, I have been exceptionally busy for two months taking over and planning the repair of a local community solar array. This 150 kW 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 Green Mountain Power. We the community investors were doing it to support the transition to renewable power, but CEC was doing it for short-term profit. It stripped funds from panel owners, long-term escrow accounts, stopped maintenance as inverters failed and then filed for bankruptcy for the three arrays it owned in Vermont. I noticed power production had dropped 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 VT sites. I found a sharp 25% power drop occurred in May 2021, when in fact 2 inverters had failed. 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.



West Haven Solar Array