

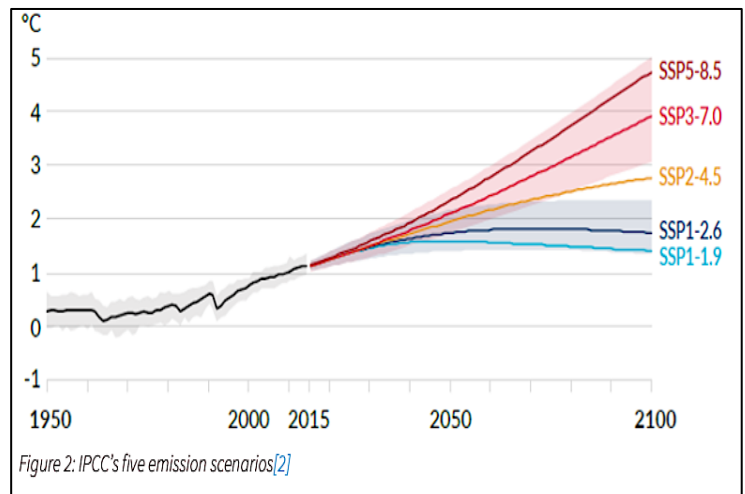
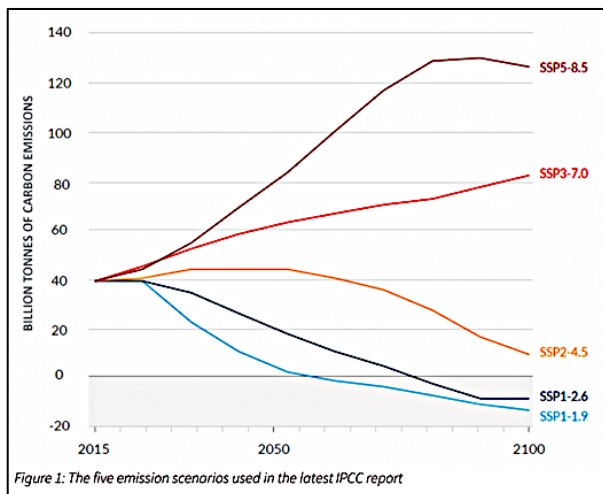
## Climate Change 4: The 2022 Midterms

There have been a number of positive developments in clean energy over the last year. In the U.S., the Climate Equity and Jobs Act has been passed in Illinois, the number of EV cars has increased by a factor of 2 (even before the new Ford Pickup entered the market), wind and solar power have increased, and the public awareness and alarm about Climate Change has continued to grow.

But the growth of clean energy is progressing far too slowly. In the first quarter of 2022, CO<sub>2</sub> emissions in the U.S. continue to grow after a slight decrease from the pandemic. The 6<sup>th</sup> IPCC report on the climate has been completed, and the conclusions are that we are quickly running out of time. Although it is still barely possible to keep the change in global temperatures below a 1.5°C (=2.7°F) increase over preindustrial times, our current path is more likely to surpass this early goal between 2030 and 2035. This depends primarily on how quickly we can reduce CO<sub>2</sub> emissions, as illustrated in the two graphs<sup>1</sup> below. The graph on the left displays 5 illustrative scenarios of how world-wide CO<sub>2</sub> emissions might evolve over this century, and the graph on the right shows the resulting change in global temperature increase.

The five curves plotted in each of these two figures correspond to 5 levels of world response to the climate crisis, chosen by the IPCC to illustrate the effects of our choices. The notation and more detailed descriptions of these curves are given in references 2, 3, and 4. Briefly, the uppermost curve (SSP5-8.5) is the “Business-As-Usual” scenario of unfettered global exploitation of fossil fuel reserves; it leads to a catastrophic global temperature increase, which is ~4.7°C (~8.5°F) and still rising at the end of this century. The lowest curve (SSP1-1.9) corresponds to a global response at the level of the original Build-Back-Better plan, which has now failed to be passed by the U.S. Congress; it requires carbon neutrality by ~2050, and is the only curve that keeps the global temperature increase below 1.5°C. The second-lowest curve (SSP1-2.6) corresponds very roughly to the goals of the 2015 Paris agreement, and would keep us below an increase of 2.0°C. Although public concern is growing now, it will now be very difficult to achieve even this. The middle curve (SSP2-4.5) is, in my view, the most likely path based on the present level of global efforts. It will lead to a temperature increase of 2.0°C by 2050, and a still-increasing temperature of >2.5°C by the end of this century. The irreparable damage to our planet and our civilization by that time will be enormous.

If countries continue to follow policies that give them the greatest short-term economic advantages, we will be following one of the 2 higher curves, and our climate will be drastically transformed by the end of this century and beyond. It is important to note that each of the 3 higher curves leads to global



temperatures that are still increasing in 2100. How we respond to the climate crisis in this decade will have enormous consequences over the next centuries.

In an address given soon after the final report of the 6<sup>th</sup> IPCC report in early 2022, U.N. Secretary General Antonio Guterres warned<sup>5</sup>:

“We are on a fast track to climate disaster....This is not fiction or exaggeration. It is what science tells us will result from our current energy policies. We are on a pathway to global warming of more than double the 1.5°C limit agreed in Paris. ...And the results will be catastrophic. This is a climate emergency.”

In the U.S., we are at an especially critical point. President Biden has proposed climate measures in the Build Back Better plan that would cut our CO<sub>2</sub> emissions by 50% below the 2005 levels by 2030, with the goal of achieving net-zero CO<sub>2</sub> emissions by 2050. The recently proposed Republican plan to combat climate change calls for an increase<sup>6</sup> in fossil fuel production and CO<sub>2</sub> emissions, which would lead to temperatures surpassing even the fears of the Secretary General.

Keeping the global temperature below 2.0°C of course requires a global effort. But the U.S. still has enormous influence over the world, as we have seen in the global response to the Russian invasion of Ukraine. I believe this goal could still be achieved if the climate provisions of Build Back Better are adopted within the next year. It is critical that we make every effort to achieve this.

In earlier decades, the Republican party was a strong supporter of science. That is no longer the case, at least not for the party leadership and for climate-change deniers. It is very likely that if Republicans win control of either congressional house this year, we will see an end to U.S. leadership in climate matters, and will fail to take the measures necessary to avoid the much more serious paths indicated on the graphs above. This can be avoided only if enough Independents and rational Republicans join with Democrats to vote for the candidates, regardless of party, who will give climate issues the priority they demand. The 2022 midterms will be one of our most consequential elections. We urge every citizen to vote this year.

Footnotes:

1. [Report of the International Panel on Climate Change \(IPCC\)](#) (2022).
2. [Where Do the 5 IPCC Scenarios Come From?](#), Institute For Climate Dynamics (Sep. 14, 2021)
3. [Five Future Scenarios of Climate Change](#), Climate Neutral Group (2021)
4. [The Five Graphs of the Climate Report](#), EOS (2022)
5. [U.N. Secretary General Warns of Climate Emergency](#), United Nations (April 4, 2022)
6. [House Republican Climate Plan](#), Emma Newburger, CNBC (June 3, 2022)