

On Monday October 8, the Intergovernmental Panel on Climate Change (IPCC) released a report on how quickly we need to take carbon out of the atmosphere to limit global warming to 1.5°C and avoid its most destructive consequences. The report itself has a lot of complex scientific information and hundreds of pages in five deeply considered and well-researched chapters. However, there is also a 34-page *Summary for Policymakers (SPM)*.

This is a “summary of the summary” and my suggestion for where we should focus our efforts to prepare for the future foretold in this report.

The bottomline of this report - The world needs to

- cease fossil fuel expansion immediately
- precipitously reduce GHG emissions no later than 2030
- be actively withdrawing atmospheric carbon by 2050

I draw your attention to three key figures within the SPM: (These are on the other side of this page)

Figure 1: Global average annual temperatures (SPM page 7) - This graph shows global average annual temperatures in the recent past and projections of possible future temperature envelopes. However, the levelling off of the graph only happens if we achieve the greenhouse gas emission reductions in the scenarios presented in Figure 3. Without those emission reductions, the curve keeps increasing until positive feedback loops become predominant drivers of further warming and the world enters an era of climate that humans have never seen before and which put civilization in peril.

Figure 2: Impacts and Risks (SPM page 14) - The coloured bars represent global impacts and risks in various areas like coastal flooding and crop yields. The darker colours represent more risk. You can see a substantial increase in risk for each ½ degree of global warming.

These are primary climate impacts. These coloured bars do not include risk of secondary impacts which are much more difficult to predict and quantify; impacts like mass migrations of climate refugees, political turmoil and economic uncertainty. These are the really dangerous consequences for the world and Manitoba.

Figure 3: Global net CO₂ emissions (SPM page 19) - This figure is the most disturbing. It says that, in order to avoid the continued increase in temperatures and the increasing impacts that result, the world needs to cut emissions precipitously starting no later than 2030. The later this decline begins, the more that global temperatures will overshoot 1.5°C. Moreover, emissions need to reach net zero by around 2050 and then go negative - In other words, we need to withdraw a huge amount of carbon out of the atmosphere just to stabilize global warming.

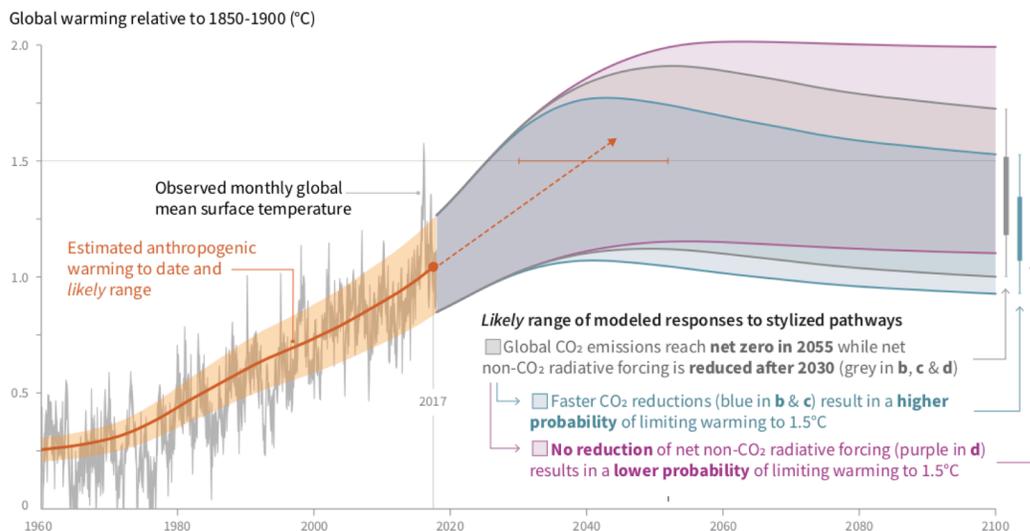
Given the current global political reality, there is serious doubt that the world will take the dramatic action required to remove carbon from the atmosphere at the scale and timeframe in Figure 3. Therefore, I suggest that the most responsible course of action is to put all of our effort into **building our resilience** to the primary and secondary impacts of climate change. *Resilience means providing for our essential needs ourselves without fossil fuel.*

To achieve true and adequate **RESILIENCE**, by 2030 Manitoba must

- **Food** - Feed ourselves locally without synthetic fertilizers or diesel for machinery
- **Shelter** - Heat and cool all of our buildings (old and new) without natural gas
- **Transportation** - Move all goods and people without gasoline or diesel

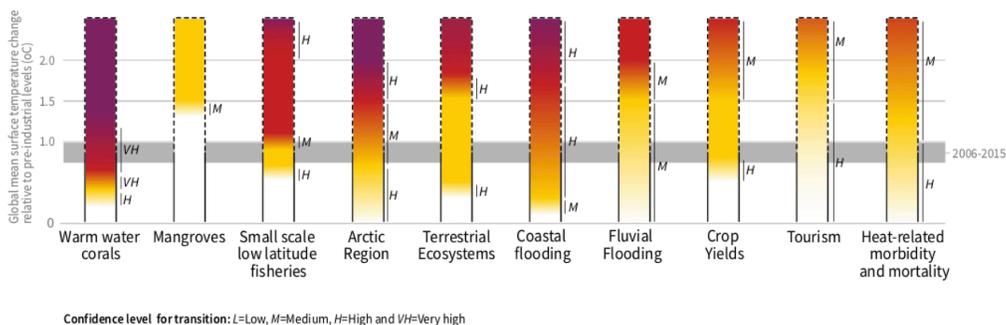
a) Observed global temperature change and modeled responses to stylized anthropogenic emission and forcing pathways

Figure 1



Impacts and risks for selected natural, managed and human systems

Figure 2



Global total net CO₂ emissions

Figure 3

