
REPORT

3171/21

TO:	MVCA Policy & Priorities Advisory Committee
FROM:	Sally McIntyre, General Manager
RE:	IPCC Report on Climate Change and MVCA
DATE:	October 13, 2021

For information.

1.0 PURPOSE

On August 6, 2021, the Intergovernmental Panel on Climate Change (IPCC) released its latest report with the most current physical science knowledge and projections regarding climate change.¹ The report states the need for all levels of government to act to: reduce greenhouse gases (GHGs) in order to mitigate extreme temperature increases; and modify business policies, plans, and programs to adapt to existing and projected changes in climate. As an organization operating on the front-line of climate change, the purpose of this report is to inform the Board of actions planned and underway at MVCA to contribute to mitigating and adapting to climate change.

2.0 THE IPCC

The United Nations created the IPCC in 1988 to provide policymakers with regular scientific assessments on the state of knowledge about climate change. The IPCC is comprised of representatives from 195-member governments with hundreds of experts that volunteer their time and expertise to conduct reviews and prepare or peer review reports.²

In addition to government appointed representatives, there are numerous “Observer Organizations” that attend sessions of the IPCC and provide experts to review draft reports.³ These groups range from the Organization of the Petroleum Exporting Countries (OPEC) to The Nature Conservancy, and the Royal Meteorological Society.

¹ <https://www.ipcc.ch/report/sixth-assessment-report-working-group-i/>

² <https://www.ipcc.ch/about/>

³ https://www.ipcc.ch/site/assets/uploads/2021/07/List_of_Observer_Organizations_26_July_2021.pdf

3.0 LATEST IPCC REPORT

The August 2021 report is the sixth in a series—the first published in 1990.⁴ It states that there is irrefutable evidence of human induced climate change, that the impacts are now observable world-wide, and that significant action is required now. This conclusion is based upon comprehensive analysis of five future scenarios (referred to as SSP₁ through SSP₅), each representing a set of socio-economic conditions/behaviours that impact greenhouse gas emissions.^{5,6}

The following two figures published by the IPCC help to illustrate their findings.

- Figure 1 shows predicted emissions and the warming potential under each scenario.
- Figure 2 shows predicted impacts on the frequency of specific intense weather events.

In summary, Figure 1 shows that even with significant changes in global socio-economic trends and associated GHG emissions, the planet is going to continue to get warmer (see red circle.)

Figure 2 shows that in the near term we are likely to experience what *was* a 1 in 10-year severe heat event 3 to 4 times more frequently.

4.0 WHAT THIS MEANS FOR MVCA

While climatic changes are predicted to be less extreme in eastern North-America compared to other regions, we will still experience changing weather patterns. These kinds of trends will have direct impacts on the planning, design and operation of MVCA's water control structures as well as on the update of our regulation mappings and associated policies. As well, we can anticipate this region to experience increased settlement due to domestic and international migration; and increased use, dependence upon, and export of local natural resources and agricultural products due their changing availability on the national and international market. This will increase demand for surface and ground water, potential water contamination, and risk from natural hazards if not planned and designed in anticipation of the impacts of climate change.

To date, actions by MVCA to address climate change have largely focused on our role in supporting adaptation to changing weather conditions. However, as a public organization on the front lines of climate change it is appropriate that we actively work toward mitigating the worst of climate change.

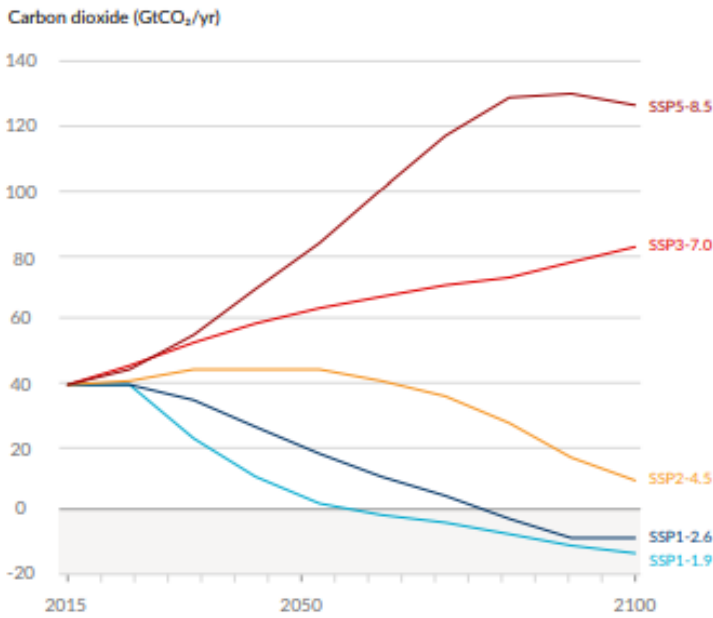
⁴ Previous reports were published in [1990](#), [1995](#), [2001](#), [2007](#), and [2014](#).

⁵ SSP refers to the Shared Socio-economic Pathway or [global social-economic trends](#) underlying the scenario.

⁶ Visit [Reuters.com](#) for a summary of each scenario: “Explainer: The U.N. climate report's five futures – decoded”

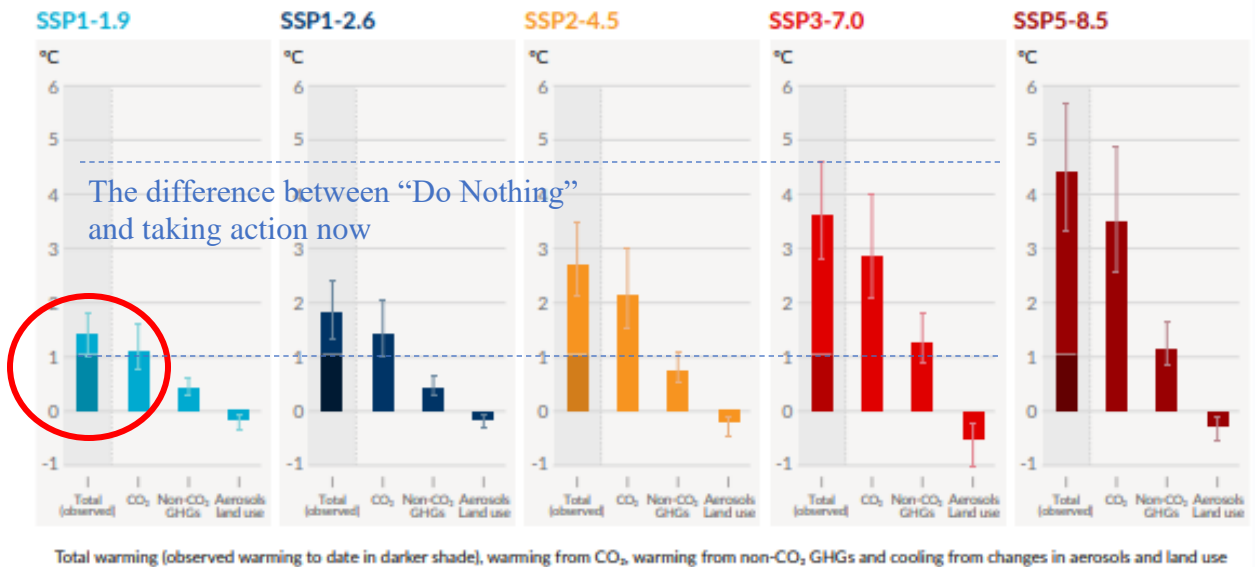
Figure 1: IPCC Emission and Warming Projections⁷

a) Future annual emissions of CO₂



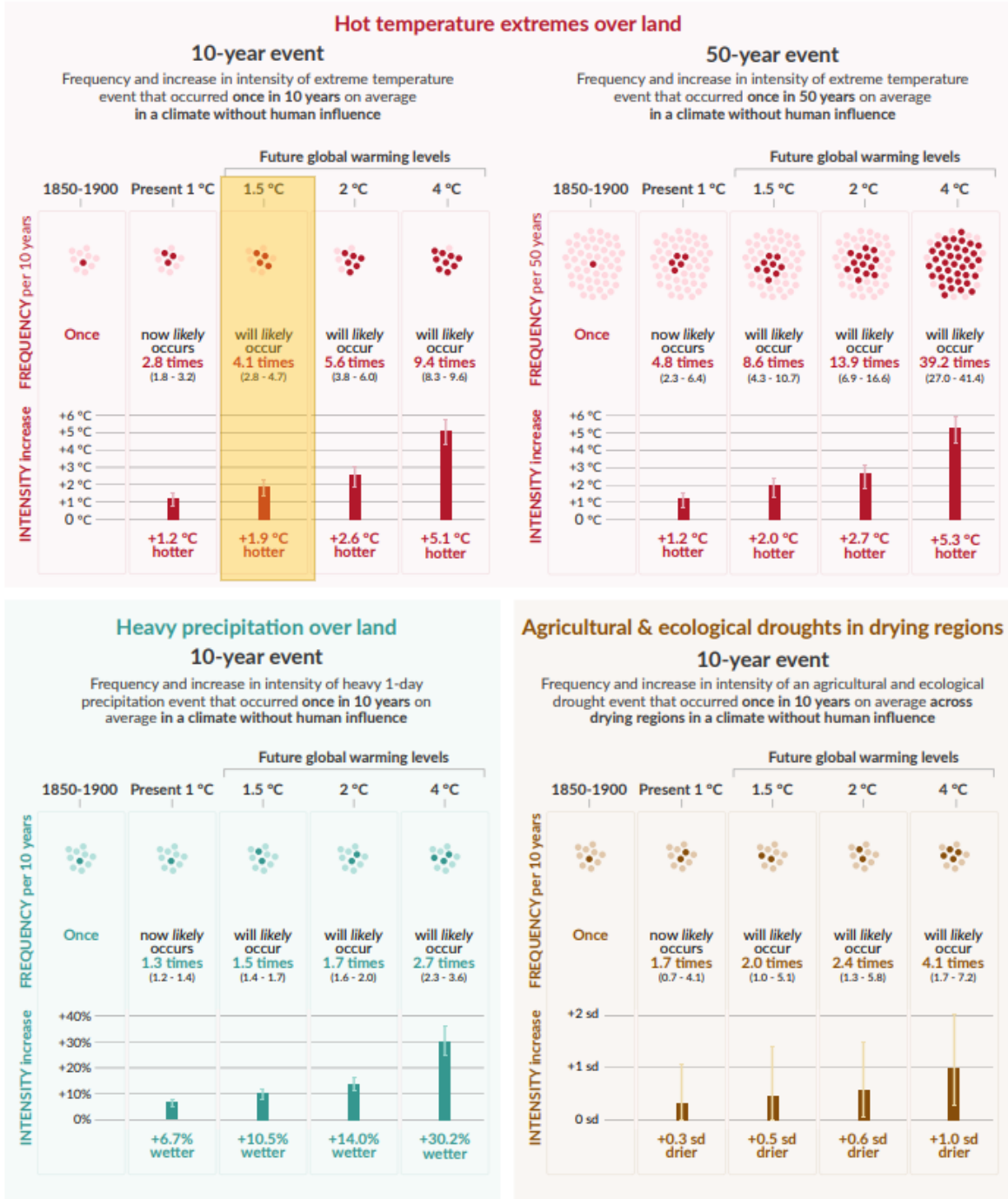
b) Contribution to global surface temperature increase from different emissions

Change in global surface temperature in 2081-2100 relative to 1850-1900 (°C)



⁷ Page SPM-16, https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf

Figure 2: IPCC Precipitation and Temperature Projections⁸



⁸ Page SPM-23, https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf

4.1 Adaptation

MVCA is already undertaking several actions towards improving organizational knowledge and readiness to address the impacts of climate change.

- Implementation of the *10-year Capital Plan* that includes conducting Dam Safety Reviews and capital improvements at existing facilities.
- Regular procurement of aerial imagery to monitor and assess changes on the landscape and the impacts of growth.
- Acquisition of LiDAR data to enable mapping and modeling of the upper watershed.
- Acquisition of bathymetric data (underwater contours) to improve modeling and predictive analysis of weather conditions, and how to manage them.
- Regular updating of flood plain mapping to reflect the above evolving knowledge, conditions.
- Participation in multi-jurisdictional working groups on how best to modify current approaches to address greater weather variability in regulatory mapping.
- Preparation of a watershed-wide risk assessment to identify areas required creation or update of flood plain mapping.
- Development of a Land Conservation Plan to identify areas that provide ecological services critical to adapting to climate change.
- Implementation of a Stewardship Program to inform and work with landowners to mitigate their impacts and adapt to the impacts of climate change.
- Working with municipalities to update their official plan policies.

A critical piece of work to be carried out will be update of the *Mississippi River Water Management Plan* in partnership with other dam owners/operators. This document, approved by the province, dictates how each owner is to operate their control structures. The current plan does not consider the impacts of climate change. Staff will recommend update of the Plan once the above noted foundation studies/modeling are completed.

4.2 Mitigation

Like most organizations in the area, the majority of MVCA's greenhouse gas emissions come from heating and cooling our facilities and the operation of the corporate fleet.

Fleet

At present, the Authority has one electric vehicle. There is considerable opportunity for MVCA to transition to an electric powered fleet through its normal vehicle replacement and procurement processes. Most daily trips by staff are under 300 km, which is within the average

range of many electric vehicles. The North-American auto industry is beginning to manufacture commercial vehicles that are electric, and as this becomes more common the price differential will lessen. Staff will follow-up with the Board as needed to implement this approach.

There is also an opportunity to adjust business practices to commuter trips by providing flexible work arrangements for employees. Due to our location, virtually all staff drive to work, many commuting from as far away as Ottawa, Smiths Falls, and Perth. A 25-40% reduction in trips and associated emissions may be possible.

Heating and Cooling

MVCA uses fossil fuels to heat its buildings, and electricity to cool them. While Ontario's power grid is largely renewable, there is an opportunity for MVCA to manage demand during extreme heat events, and to work towards conversion of its heating system as key components reach the end of their lifecycle. Staff will investigate these opportunities as resources allow with the goal of being ready to pursue a preferred course of action should government subsidies become available that would make replacement feasible, or if there is a critical component failure and replacement is required.

5.0 CARBON CAPTURE AND GHG EMISSION OFFSETS

As an owner of wetland, grassland, and forest habitat, MVCA is in a position to calculate and determine the degree to which these resources help to offset corporate emissions. Furthermore, there is an opportunity for MVCA to work with other corporations looking to secure land for the purpose of carbon capture and storage. This is an evolving area of business for conservation authorities and staff will report back to the Board with potential options as resources allow.

6.0 CORPORATE STRATEGIC PLAN

Mitigating and adapting to the impacts of climate change is integral to the work we do and supports achievement of the following goal and objectives:

Goal 1: Asset Management – revitalize watershed management activities and invest in our legislated mandate.

- a) Implement the five-year capital program.
- b) Strengthen our risk analysis and management capacity to include climate change and development impacts.
- c) Implement priority actions identified in the *Mississippi River Watershed Plan*.