



Challenging Climate

Volume 1 | Issue 1 | January 2020 | Grey Bruce Climate Task Force

Announcements

- The City of Owen Sound will be hiring a climate change adaption and mitigation coordinator - [The City of Owen Sound Meeting Minutes](#)
- Grey County Council approves the creation of a new Climate Change Task Force
- Course on Climate Change and Health developed by the Inter-Governmental Panel on Climate Change (IPCC) - [Information on Course](#)

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New infrastructure project in Bruce County that focuses on Hydrogen Energy

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Read all about the key points from the *Canada's Changing Climate Report*

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Information on Bruce County's *Plan the Bruce* and Grey County's Climate Change Action Plan

Bruce Innovates – Foundational Hydrogen Infrastructure

An opportunity exists for Bruce County to produce clean hydrogen from clean nuclear and renewable electricity, and position the region to not only contribute to, but also to benefit from, the transition to a low-carbon economy. Recently, Bruce County, with its partner, Saugeen First Nation, launched the “Bruce Innovates: Foundational Hydrogen Infrastructure Project”. The project aims to transform the Bruce region into the Clean Energy Capital of Canada and become a world-class region for collaboration and training in clean technology development and innovation. Bruce Innovates will pursue multiple objectives simultaneously, including:



1. Developing, testing and scaling-up hydrogen-based energy systems – by undertaking pilot projects before eventually progressing to larger-scale commercial technologies;
2. Diversifying and boosting the economy – by growing a hydrogen economy and creating export opportunities, supporting entrepreneurship, clean-tech business development, job creation and next generation career development;
3. Supporting Saugeen First Nation (SFN) and other First Nation communities in building capacity towards greater energy self-sufficiency – by developing hydrogen-based on- and off-grid energy systems; and
4. Accelerating the commercial deployment of Canadian-based hydrogen technologies both nationally and abroad – by marketing utility-scale hydrogen production and energy storage technologies.

Hydrogen is a clean fuel that will play a key role in transitioning to a low-carbon future. Hydrogen is produced through a process called “Power-to-Gas”. Electricity (nuclear and renewable sources) is fed through an electrolyser. This device uses the electricity to split a water molecule into oxygen and hydrogen gas. This green hydrogen is then used in multiple end-use applications. They range from electrical grid stabilization, to the decarbonization of the gas grid, to fuel for vehicles, heat buildings and more.

In 2020, two key documents will be advanced: A Feasibility Study and a Business Plan with the goal by 2023 to have the first demonstration of small-scale hydrogen production and storage technologies. We encourage you to follow along as Bruce Innovates continues to advance this exciting project that is leading the way in moving towards a low-carbon future, while creating a clean tech economy and next generation skill development.

Key messages from *Canada's Changing Climate*

- **Canada's climate has warmed and will warm further in the future, driven by human influence.** Global emissions of carbon dioxide from human activity will largely determine how much warming Canada and the world will experience in the future, and this warming is effectively irreversible.
- **Both past and future warming in Canada is, on average, about double the magnitude of global warming.** Northern Canada has warmed and will continue to warm at more than double the global rate.
- **Oceans surrounding Canada have warmed, become more acidic, and less oxygenated, consistent with observed global ocean changes over the past century.** Ocean warming and loss of oxygen will intensify with further emissions of all greenhouse gases, whereas ocean acidification will increase in response to additional carbon dioxide emissions. These changes threaten the health of marine ecosystems.
- **The effects of widespread warming are evident in many parts of Canada and are projected to intensify in the future.** In Canada, these effects include more extreme heat, less extreme cold, longer growing seasons, shorter snow and ice cover seasons, earlier spring peak streamflow, thinning glaciers, thawing permafrost, and rising sea level. Because some further warming is unavoidable, these trends will continue.
- **Precipitation is projected to increase for most of Canada, on average, although summer rainfall may decrease in some areas.** Precipitation has increased in many parts of Canada, and there has been a shift toward less snowfall and more rainfall. Annual and winter precipitation is projected to increase everywhere in Canada over the 21st century. However, reductions in summer rainfall are projected for parts of southern Canada under a high emission scenario toward the late century.
- **The seasonal availability of freshwater is changing, with an increased risk of water supply shortages in summer.** Warmer winters and earlier snowmelt will combine to produce higher winter streamflows, while smaller snowpacks and loss of glacier ice during this century will combine to produce lower summer streamflows. Warmer summers will increase evaporation of surface water and contribute to reduced summer water availability in the future despite more precipitation in some places.
- **A warmer climate will intensify some weather extremes in the future.** Extreme hot temperatures will become more frequent and more intense. This will increase the severity of heatwaves and contribute to increased drought and wildfire risks. While inland flooding results from multiple factors, more intense rainfalls will increase urban flood risks. It is uncertain how warmer temperatures and smaller snowpacks will combine to affect the frequency and magnitude of snowmelt-related flooding.

Please visit [Canada Changing Climate Report](#) to view the report and for more information.

- **Coastal flooding is expected to increase in many areas of Canada due to local sea level rise.** Changes in local sea-level are a combination of global sea level rise and local land subsidence or uplift. Local sea level is projected to rise, and increase flooding, along most of the Atlantic and Pacific coasts of Canada and the Beaufort coast in the Arctic where the land is subsiding or slowly uplifting. The loss of sea ice in Arctic and Atlantic Canada further increases the risk of damage to coastal infrastructure and ecosystem as a result of larger storm surges and waves.
- **The rate and magnitude of climate change under high versus low emission scenarios project two very different futures for Canada.** Scenarios with large and rapid warming illustrate the profound effects on Canadian climate of continued growth in greenhouse gas emissions. Scenarios with limited warming will only occur if Canada and the rest of the world reduce carbon emissions to near zero early in the second half of the century and reduce emissions of other greenhouse gases substantially. Projections based on a range of emission scenarios are needed to inform impact assessment, climate risk management, and policy development.
- **Canadian areas of the Arctic and Atlantic Oceans have experienced longer and more widespread sea-ice-free conditions.** Canadian Arctic marine areas, including the Beaufort Sea and Baffin Bay, are projected to have extensive ice-free periods during summer by mid-century. The last area in the entire Arctic with summer sea ice is projected to be north of the Canadian Arctic Archipelago. This area will be an important refuge for ice-dependent species and an ongoing source of potentially hazardous ice, which will drift into Canadian waters.

THE EFFECTS OF WIDESPREAD WARMING ARE EVIDENT IN MANY PARTS OF CANADA

EFFECTS ARE PROJECTED TO INTENSIFY IN THE FUTURE



Extreme warm temperatures have become hotter and even hotter temperatures are projected for the future. This will increase the severity of heatwaves, and contribute to increased drought and wildfire risk.



Extreme high water-level events along Canada's Atlantic, Pacific, and Beaufort coastlines are projected to increase in frequency and magnitude.



Increases in ocean acidity and reductions in subsurface oxygen conditions are projected to become more widespread and detrimental to marine life.



Changes in the seasonal availability of fresh water are projected with an increased risk of water supply shortages in summer.



Reductions in sea ice area are projected across the Canadian Arctic in the summer and Atlantic Canada in the winter. Multi-year ice drifting from the Canadian Arctic Archipelago and Greenland will still present a navigation hazard.



Reductions in seasonal snow accumulation are projected for southern Canada and declines in snow cover duration for all of Canada.

Government of Canada. Changing Climate Report, 2019.

Bruce County's *Plan the Bruce*

Bruce County's Planning and Development Department is kicking off our Plan the Bruce Project which will culminate in a new Official Plan for the County of Bruce. The Plan will lay out a policy framework which will lead the next 25 years of growth and development in the County. The vision and guiding principles for the Plan were developed through the Bruce GPS community visioning project which occurred through 2018 and 2019. The vision statement that will guide land use planning over the next 20 years is:

"We are the explorers: navigating Bruce County towards a healthy, diverse, and thriving future"

This vision is supported by eight guiding principles. Together, these will guide our decision making and ensure that our choices are aligned with the vision of our community. The first phase of the Plan the Bruce project is to develop 8 discussion papers, based on these guiding principles, that will provide a framework for the new Official Plan.

The first four Discussion Papers, intended to be published in the first half of 2020, will provide a framework for Agriculture, Homes, our Natural Legacy and Good Growth. These papers will provide a snapshot of where we are today and how we may be able to achieve our goals going forward. We know that the decisions we make today will impact our community's resilience, wellbeing, and prosperity into the future. We encourage all those interested in the future of Bruce County to get involved with the Plan the Bruce project and connect with our team.

Grey County's *Climate Change Action Plan*

Grey County is in the process of developing a Climate Change Action Plan (CCAP) that will guide the region in mitigating and adapting to climate change. Through a RFP process, the County selected ICELI Canada as their consultant to conduct a GHG assessment and provide recommendations to Grey County Council. The CCAP will be developed under the Federation of Canadian Municipalities (FCM) Partners for Climate Protection (PCP) program.

Alongside developing the CCAP, Grey County Council has approved the development of a Climate Change Task Force. The Terms of Reference for the Task Force are currently being developed by County staff.

If any member of the public would like more information on the project or would like to be added onto the distribution list, please email hiba.hussain@grey.ca.

Who are we?

The Grey Bruce Climate Task force was created by the Grey Bruce Public Health Unit to address climate change within the region. The group is made of intergovernmental organizations, conservation authorities, and public organizations interested in addressing climate change. The purpose of the group is to provide a mechanism for members to communicate, collaborate and network, to share climate change resources and program ideas, and to discuss professional issues. The quarterly *Challenging Climate* newsletter is intended to provide updates from organizations within the Task Force and to highlight important issues and announcements within the Grey Bruce communities. If you would like more information on the Task Force or would like to submit a piece for the next issue of *Challenging Climate*, please email hiba.hussain@grey.ca.