



CAPE
Canadian Association
of Physicians
for the Environment

Association Canadienne
des Médecins
pour l'Environnement
ACME

Responding to Climate Change as Health Professionals

CPHA Conference Workshop

May 2, 2019

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Extreme Heat - Summer of 2018

2018 - Millions of Canadians in Central & Eastern Canada exposed to high # of days with extreme heat

In Toronto:

- ▶ Temperatures exceeded 30°C for 21 days
- ▶ 30-year average of 12.2 days/year until 2005

In Quebec:

- ▶ It was reported that extreme heat claimed the lives of more than 90 people in one week



Wildfires & Smoke - Summer of 2018

- ▶ BC declared a provincial state of emergency - fought to contain nearly 600 wildfires
- ▶ Thousands were evacuated from their homes; thousands on notice
- ▶ Millions were exposed to air pollution rated as “high risk” and “very high risk” for days or weeks because of smoke from wildfires.
- ▶ AQHI - 8, 10 and 10+
- ▶ Calgary, Vancouver & Edmonton



Photos: Thinkstock, Wildfire Smoke

2018 Lancet Countdown - Health & Climate Change

“Trends in climate change impacts, exposures, and vulnerabilities demonstrate an unacceptably high level of risk for the current and future health of populations across the world...”

- ▶ 712 extreme weather events occurred in 2017 resulting in US\$326 billion in economic losses
- ▶ 157 million more people were exposed to heat waves in 2017 than in 2000
- ▶ 3.4 billion weeks of work were lost in 2017
- ▶ Agricultural yield potential decreasing in the 30 countries.

Identified under-nutrition as the largest health impact of climate change in the 21st century.



Photo: Stencil, Hurricane, Puerto Rico

International Panel on Climate Change (IPCC) Compared Impacts of 1.5 & 2.0 °C

- ▶ IPCC examined the impact of 1.5 & 2.0 °C of warming in an 800 page report - released in the fall 2018
- ▶ It concluded that:
 - ▶ 1.5 °C would amplify all of the effects we are experiencing now
 - ▶ 2.0 °C would be so much greater for ecological systems and human health
- ▶ **E.g. With 2.0 °C of warming, several hundred million more people would be exposed to climate-related risks and susceptible to poverty by 2050**



Photo: 1a_Photography

Paris Agreement - 2015 - 195 Countries

Under the United Nations Framework Convention on Climate Change

- ▶ Agreed to: hold global warming well below 2°C and to pursue efforts to limit global warming to 1.5°C
- ▶ We are 11 years from 1.5°C
- ▶ Current trajectories have the world on course for 2.6 to 4.8°C of warming by 2100.
- ▶ To prevent 2°C, the IPCC concluded that collectively we have to cut climate emission by:
 - ▶ 45% by 2030 and
 - ▶ to zero by 2050.

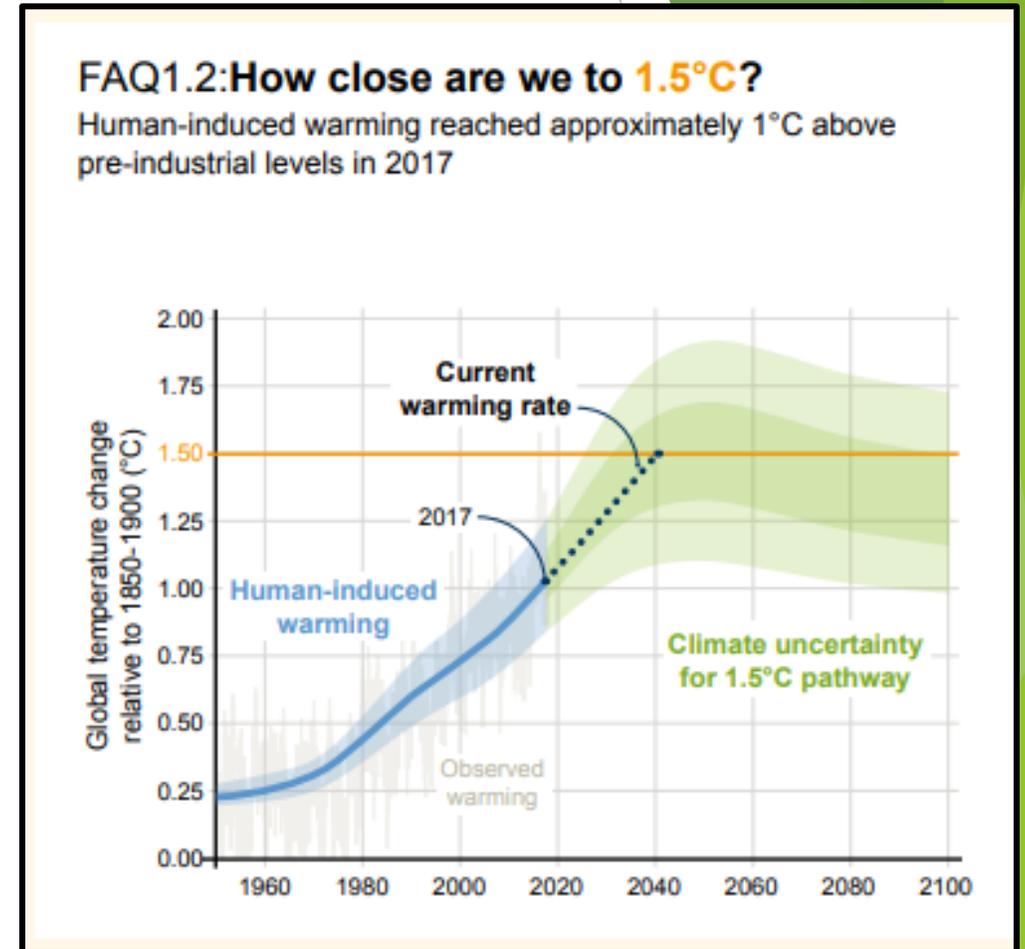


Figure: IPCC 2018 FAQ

Total Canadian GHG emissions, 1990-2016 with Successive Federal Projections to 2030

- ▶ Canada committed to reducing GHGs by 30% of 2005 levels by 2030
- ▶ Cutting by 191 Mt - from 704 Mt in 2016 to 513 MT in 2030
- ▶ **We are from our target**
- ▶ **And we need to do much more to limit warming at 1.5 °C**

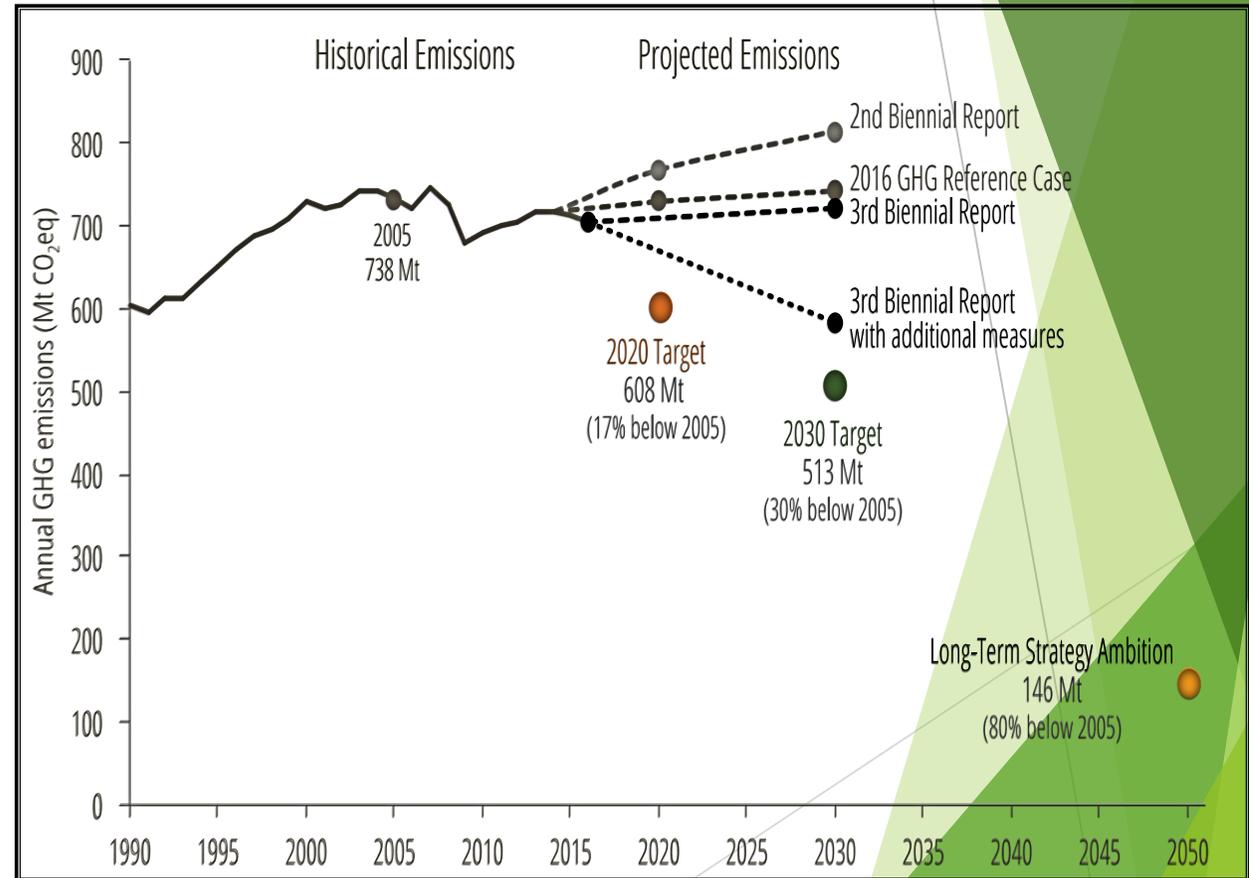
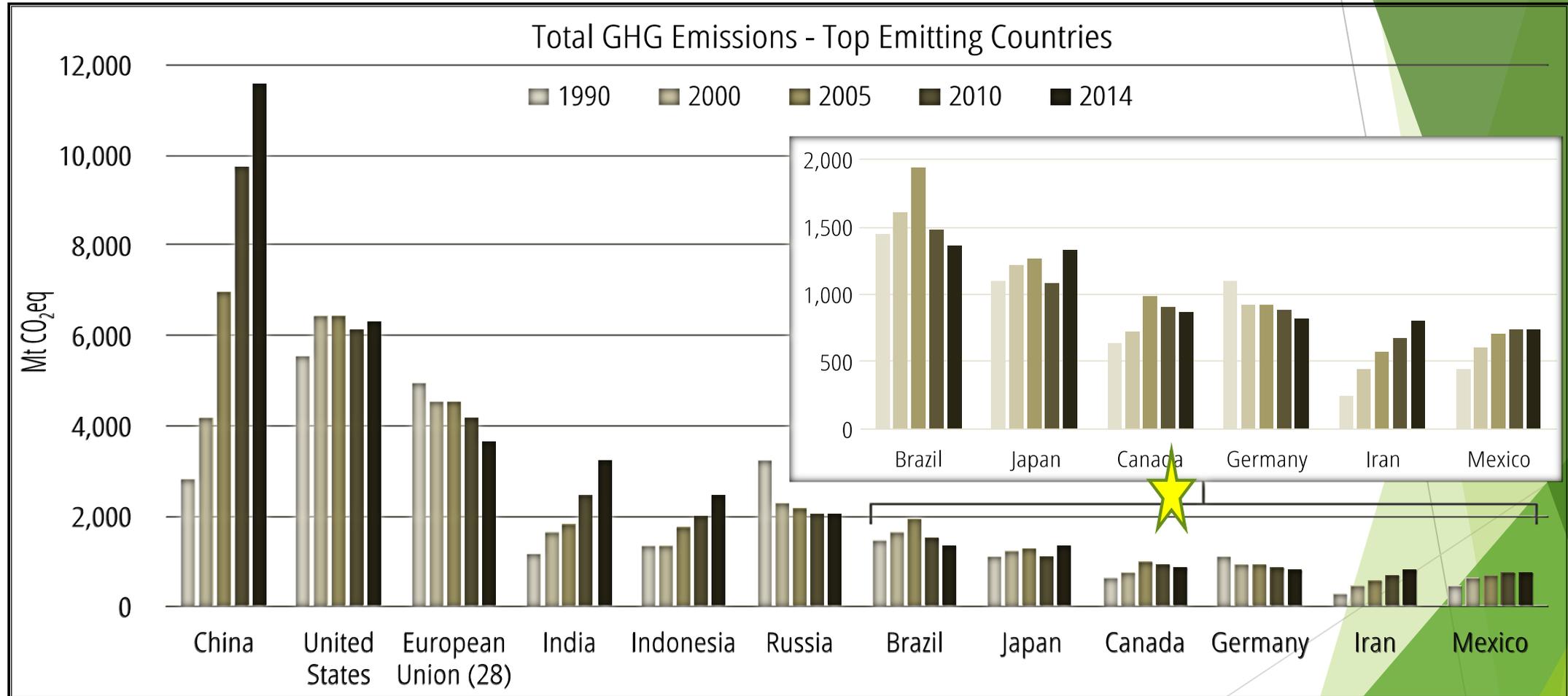


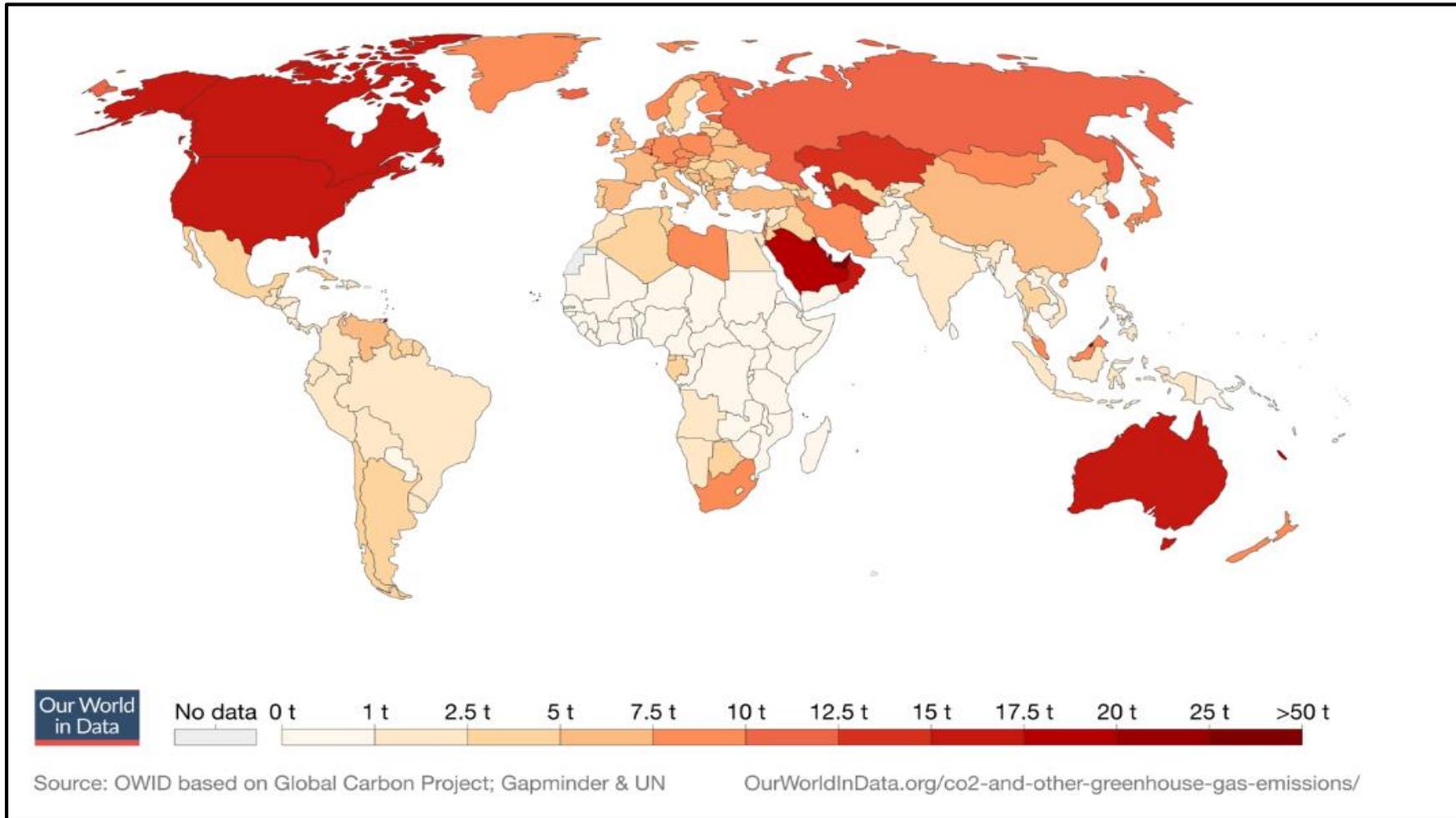
Figure: CAPE Toolkit Module 4

Top 12 GHG Emitters Globally - Selected Years



Data Source: World Resources Institute, [Climate Watch](#), [CAIT Climate Data Explorer](#).

Average CO₂ Emissions per Capita, 2016 (tonnes/year)



Reference: Ritchie and Roser, 2019

Call to Action on Climate Change and Health

- ▶ CAPE
- ▶ Canadian Medical Association
- ▶ Canadian Nurses Association
- ▶ Urban Public Health Network
- ▶ Canadian Public Health Association
- ▶ February 5, 2019

<https://cape.ca/wp-content/uploads/2019/02/2019-Call-to-Action-Feb-5-2019-FINAL.pdf>

<https://cape.ca/wp-content/uploads/2019/03/Appel-%C3%A0-l%E2%80%99Action-concernant-le-Changement-Climatique-et-la-Sant%C3%A9-Feb-5-2019-updated-2019-mars.pdf>



**Call to Action on Climate Change and Health:
From Canada's Health Professionals to
Canada's Federal Political Parties**

February 5, 2019

This Call to Action comes from doctors, nurses, medical officers of health and public health professionals across Canada.

We are calling on all federal political parties in Canada to see climate change as we, and the World Health Organization, see it—as “the greatest health threat of the 21st century.”¹ We are asking you to see climate solutions as we, and the prestigious medical journal, *The Lancet*, see them – as “the greatest health opportunity of this century”.² Many of the policies needed to fight climate change will produce immediate health benefits, reduce healthcare costs, and improve social cohesion and equity in our communities.

We are calling on each of you to make meaningful and effective action on climate change a central theme of your party's platform as you prepare for this year's federal election.

Climate change is already harming the physical and mental health of Canadians. Cardiorespiratory impacts from worsening air pollution due to wildfires left many Canadians coughing and cooped up inside in recent summers.³⁻⁴ Emergency evacuations and population displacement from wildfires and floods have been associated with trauma and post-traumatic stress disorder.⁵⁻⁶ In the Canadian Arctic, where temperatures have increased by up to 3°C from the 1950s,⁷ health risks are increasing from food insecurity resulting from decreased access to traditional Indigenous foods.⁸ Meanwhile, Lyme disease has spread into new regions in Canada⁹ and more intense and prolonged pollen seasons have the potential to exacerbate hay fever and asthma.¹⁰

Over the last two decades, Canada has seen a dramatic increase in the costs of extreme weather events such as hurricanes, floods, and wildfires. The Insurance Bureau of Canada reports that claims for natural disasters such as floods and wildfires have grown from \$400 million per year in previous decades to approximately \$1 billion per year today, while government funding for flood damage and other disasters has increased steadily from about \$100-million per year two decades ago to \$2 billion per year in 2013-14.¹¹

Call to Action on Climate Change and Health 10 1

Call to Action on Climate Change and Health-Actions Needed (Highlights)

- ▶ **We are calling on each Federal Political Party to:**
 - ▶ Make meaningful and effective action on climate change a central theme of your party's platform as you prepare for this year's federal election;
 - ▶ **Develop effective and evidence-based climate action plans that demonstrate how Canada will achieve the emission reductions needed to do its fair share to keep global warming below 1.5°C;** (many sub-sets to this recommendation)
 - ▶ Develop and properly fund just transition policies and programs to support an equitable transition for the farmers and workers, and their communities, who will be impacted by the transition to a low carbon economy;
 - ▶ Make strong commitments to minimize the impact of climate change on the health of Canadians (several sub-sets to this recommendation)

Round Table Discussion

- ▶ What changes in your climate are you seeing in your region?
- ▶ What health risks or health impacts do you think or know are linked to these changes?

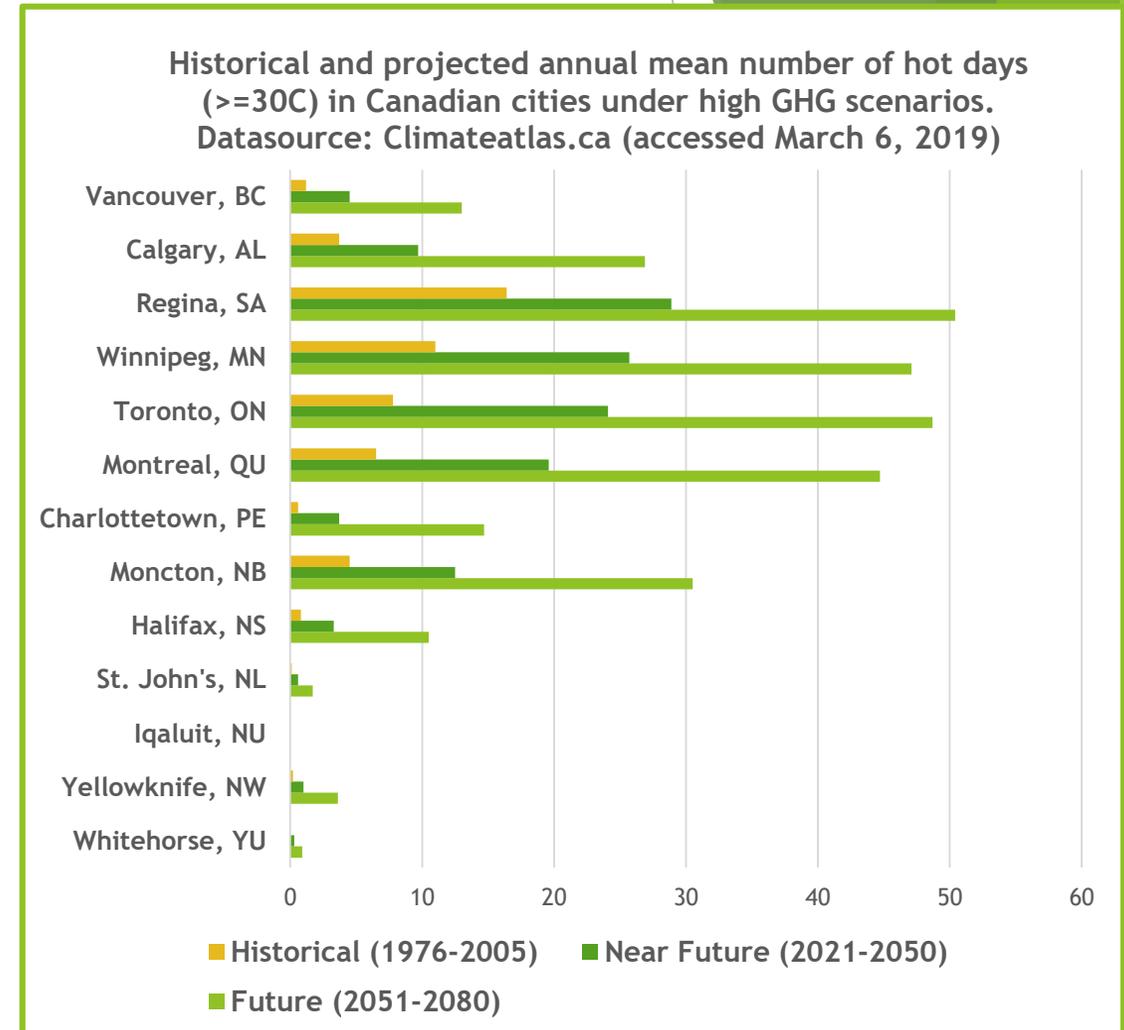


Photos: Dan Tobias, Ice Fishing

Health Risks & Impacts to Canadians: Extreme Heat

- ▶ Canadians already experiencing heat-related health impacts: 2018 heat wave in Quebec linked to over 90 deaths
- ▶ The number of extremely hot days is expected to double or triple in parts of Canada in next 30 years
- ▶ Over 50 extremely hot days and over 30 hot nights are predicted annually for Canada's largest population centres in Ontario and Quebec
- ▶ Increased violence, stress and poor mental health associated with heat events
- ▶ **Canada's Changing Climate Report 2019:** *Extreme hot temperatures will become more frequent and more intense."*

References: Module 3, CAPE Climate Change Toolkit for Health Professionals



Health Risks & Impacts to Canadians: Air Pollution

- ▶ Health Canada estimates that 14,400 premature deaths annually in Canada result from air pollution emitted from human activities
- ▶ Air pollution increases the risk of lung cancer and cardiovascular disease and exacerbates respiratory conditions, asthma and allergies
- ▶ Warmer temperatures amplify smog-forming chemical reactions
- ▶ Warming weather and milder winters increase allergy producing pollen and spore production
- ▶ Forest fires, wind and dust storms, and droughts increase exposure to fine particulate matter and other pollutants



Thinkstock

Health Risks & Impacts to Canadians: Vector-borne Diseases

- ▶ Changing climatic conditions across parts of Canada are more conducive to the emergence and spread of vector-borne diseases
- ▶ 6,029 human cases of Lyme disease reported in Canada between 2009 and 2017 -> increased from 144 in 2009 to 2025 in 2017
- ▶ Over 6,000 human cases of West Nile virus reported in Canada since 2002
- ▶ Expect more epidemics of diseases endemic to Canada, and possible introduction of exotic mosquito-borne diseases e.g. malaria and dengue
- ▶ Amplifying risk - aging population



Photo: Erop Kameneb, Unsplash

Health Risks & Impacts to Canadians: Extreme Weather Events

- ▶ Over 195 **disaster-level** extreme weather events reported across Canada between 2008 and 2018 (wildfires, floods, winter storms, droughts, extreme heat, and tornadoes). (Canadian Disaster Database)
- ▶ Almost half a million people across Canada were evacuated because of wild fires between 1980 and 2017 (Canadian Forest Services)
- ▶ Floods are the most commonly occurring and costliest natural disaster in Canada.
- ▶ Health risks from floods include injury and death, water and food borne diseases, mould, stress and poor mental health, community displacement, and financial burden
- ▶ **Canada's Changing Climate Report 2019: "A warmer climate will intensify some weather extremes...increased drought and wildfire risk."**



References: Module 3, CAPE Climate Change Toolkit for Health Professionals

Health Risks and Impacts to Canadians: Food & Water

Food Safety & Water Quality

- ▶ 4 million Canadians are affected by food-borne illness annually
- ▶ Water-borne pathogens cause gastrointestinal illnesses, and some have led to chronic health conditions and death in Canada
- ▶ A warming climate and extreme weather events may increase food and water borne illness rates in Canada
- ▶ **Canada's Changing Climate Report 2019: "...increased risk of water supply shortages"**

Food and Water Security

- ▶ Many families and communities across Canada live with food insecurity
- ▶ Several northern and First Nations communities are under drinking water advisories
- ▶ Climate change could affect the availability and cost of some foods
- ▶ Droughts and heavy rainfall events may result in water supplies being unusable or unavailable

References: Module 3, CAPE Climate Change Toolkit for Health Professionals

Health Risks and Impacts to Canadians: Mental Health

- ▶ Extreme weather events, such as wildfires, heat waves and floods can lead to post-traumatic stress disorder, anxiety, depression, and substance abuse
- ▶ Climate variability and incremental changes such as sea level rise, rising temperatures and drought can lead to poor mental health outcomes including anxiety, depression and suicidal thoughts
- ▶ The threat of future climate-related disasters, current climate change risks and perceived threats can cause emotional distress, heightened anxiety and feelings of hopelessness.
- ▶ Research studying anxiety disorders following Fort McMurray fires - observed risk factors that increased anxiety symptoms e.g. witnessing event, media coverage, being relocated, perceived lack of support
- ▶ Exploratory study in Nunatsiavut ranked mental health and well-being as climate sensitive health priorities

Health Risks and Impacts to Canadians: Health Equity & Vulnerable Populations

Canadians most vulnerable to climate change:

- ▶ People on low incomes
- ▶ Older people
- ▶ Children
- ▶ Indigenous people and people living in the North
- ▶ Individuals with illness or chronic diseases
- ▶ People experiencing existing health inequities

References: Module 3, CAPE Climate Change Toolkit for Health Professionals

Climate change may amplify existing health inequities in Canada:

- ▶ In 2011, 1/3 Canadians lived in households with core housing needs due to unaffordability, overcrowding or in need of repair
- ▶ 8.3% of Canadian households experienced moderate to severe food insecurity

Regional Climate-Related Health Risks to Canadians

Northern Canada

- ▶ Melting permafrost, thinning sea ice, reduced snow cover, shoreline erosion
- ▶ Changing plant, wildlife and disease-vector habitats.
- ▶ Food insecurity, dangerous travel
- ▶ *Canada's Changing Climate Report 2019: "Northern Canada has warmed and will continue to warm at more than double the global rate."*

Atlantic Provinces

- ▶ Tropical storms, heavy precipitation events, flooding, shoreline erosion, changing sea ice
- ▶ Sea-level rise, warming ocean

References: Module 3, CAPE Climate Change Toolkit for Health Professionals



Photo: Zippo S. Hurricane Igor's devastation, Newfoundland.

Regional Climate-Related Health Risks to Canadians

Quebec and Ontario

- ▶ Heavy rainfall events, flooding
- ▶ More frequent and prolonged extreme heat events
- ▶ Changing vector-borne disease habitats
- ▶ **Canada's Changing Climate Report 2019: "...more intense rainfalls will increase urban flood risks."**

Prairie Provinces

- ▶ Extreme weather events, wildfires
- ▶ Extreme rainfall and flooding events
- ▶ Drought

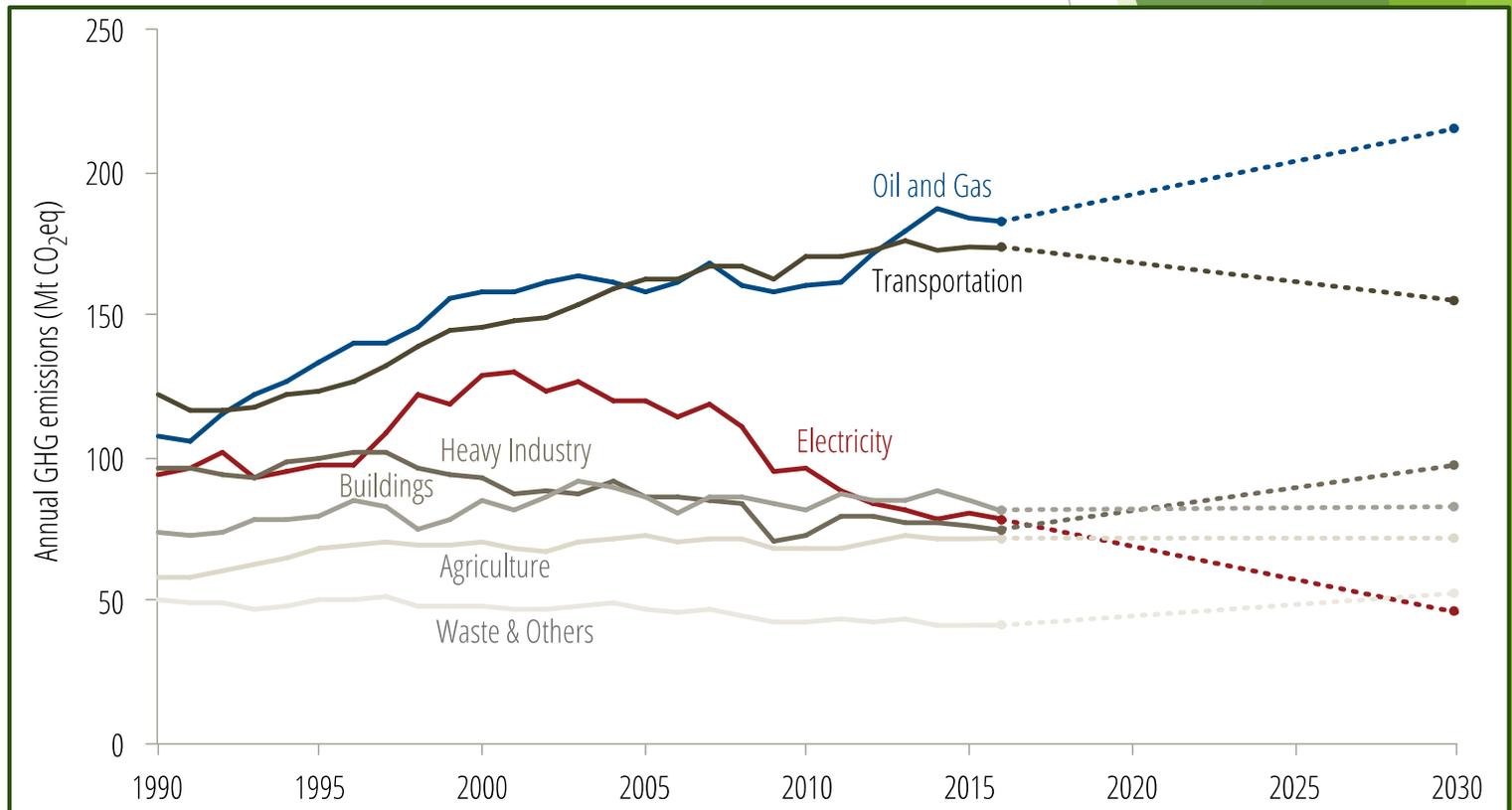
British Columbia

- ▶ Sea level rise, sea surface temperature increase, ice-free lakes and rivers earlier in the spring
- ▶ Increase in the number and severity of wildfires

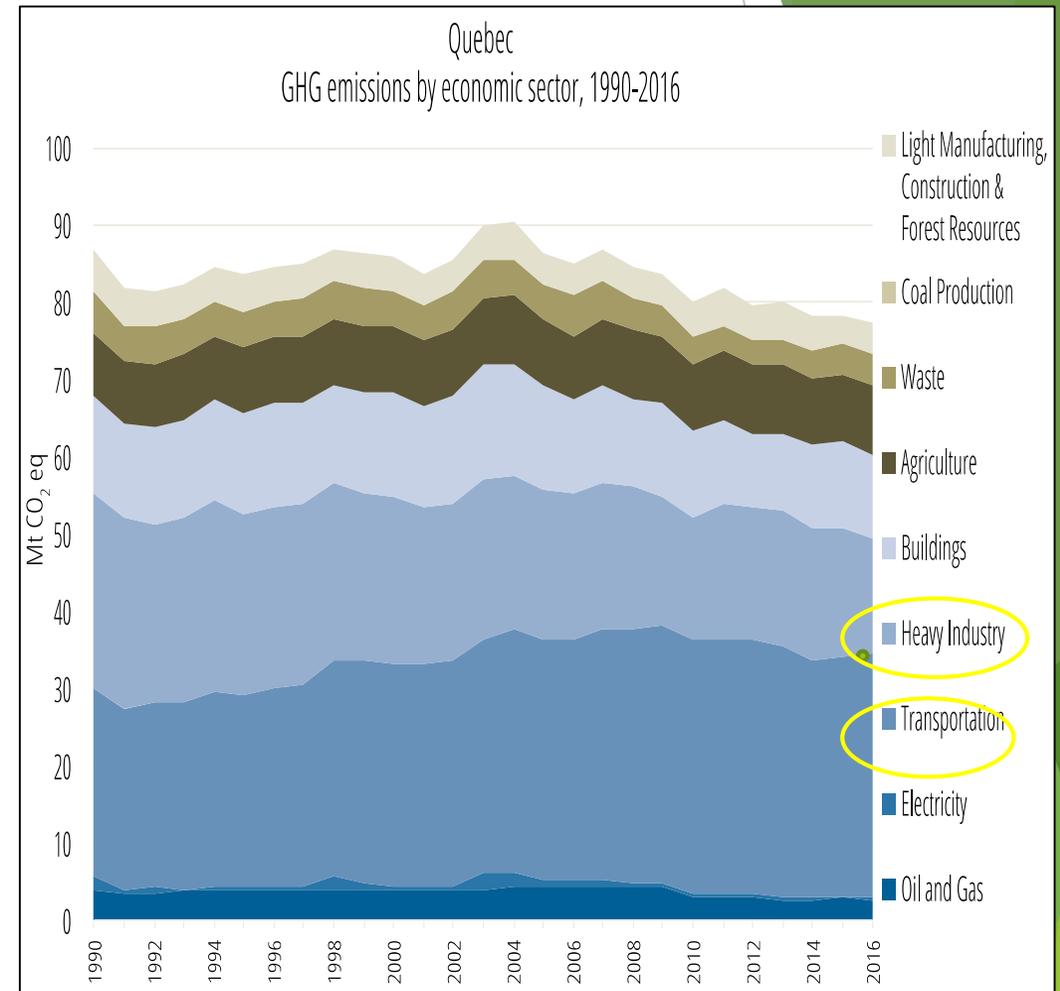
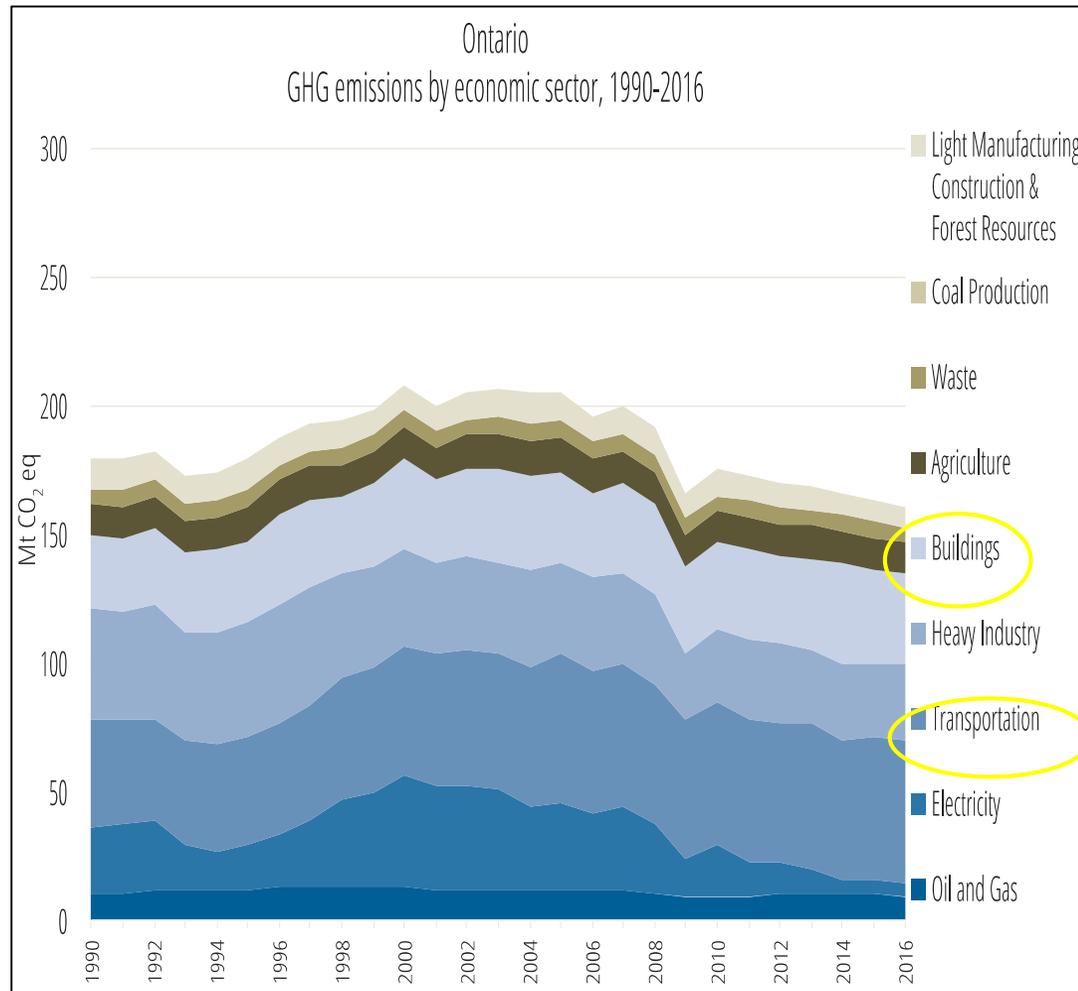


Canadian GHGs by Economic Sector, 1990-2016 with Federal Projections to 2030

- ▶ **Electricity Emissions** falling due to coal phase-out (red line)(11% today)
- ▶ **Transportation Sector** increasing (brown line) (25% today)
- ▶ **Oil & Gas Sector** increasing (blue line) (26% today)

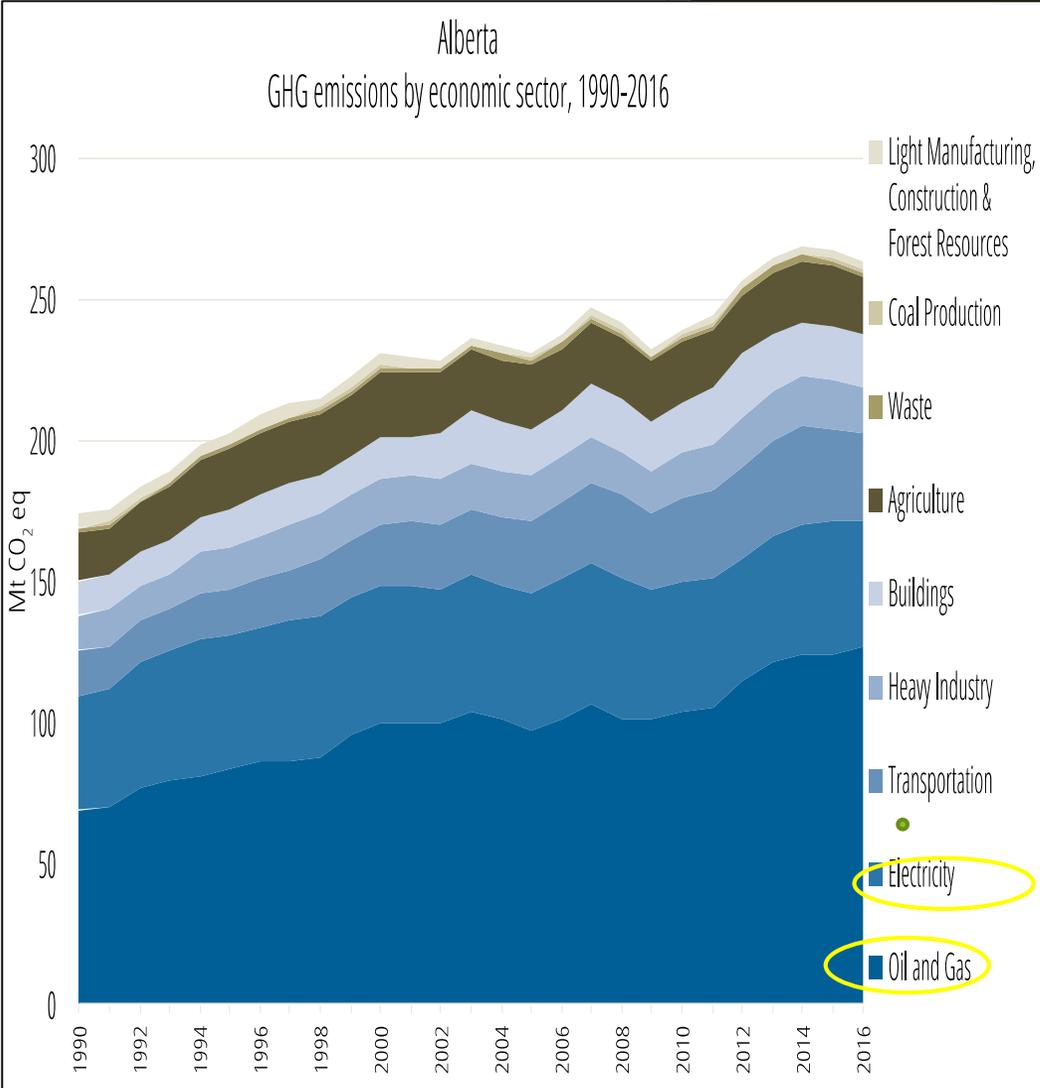
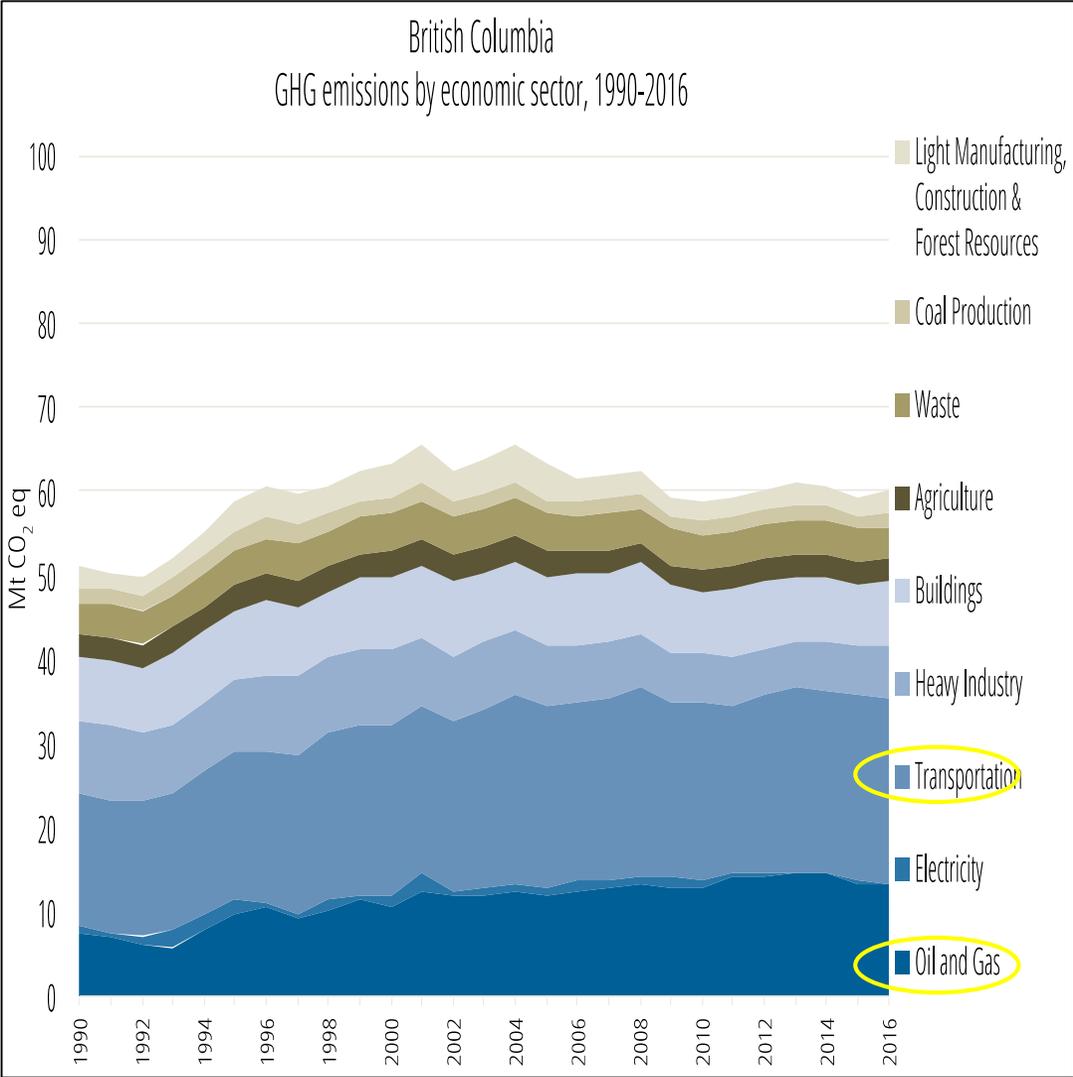


GHG Emission Trends by Sector - ON & PQ



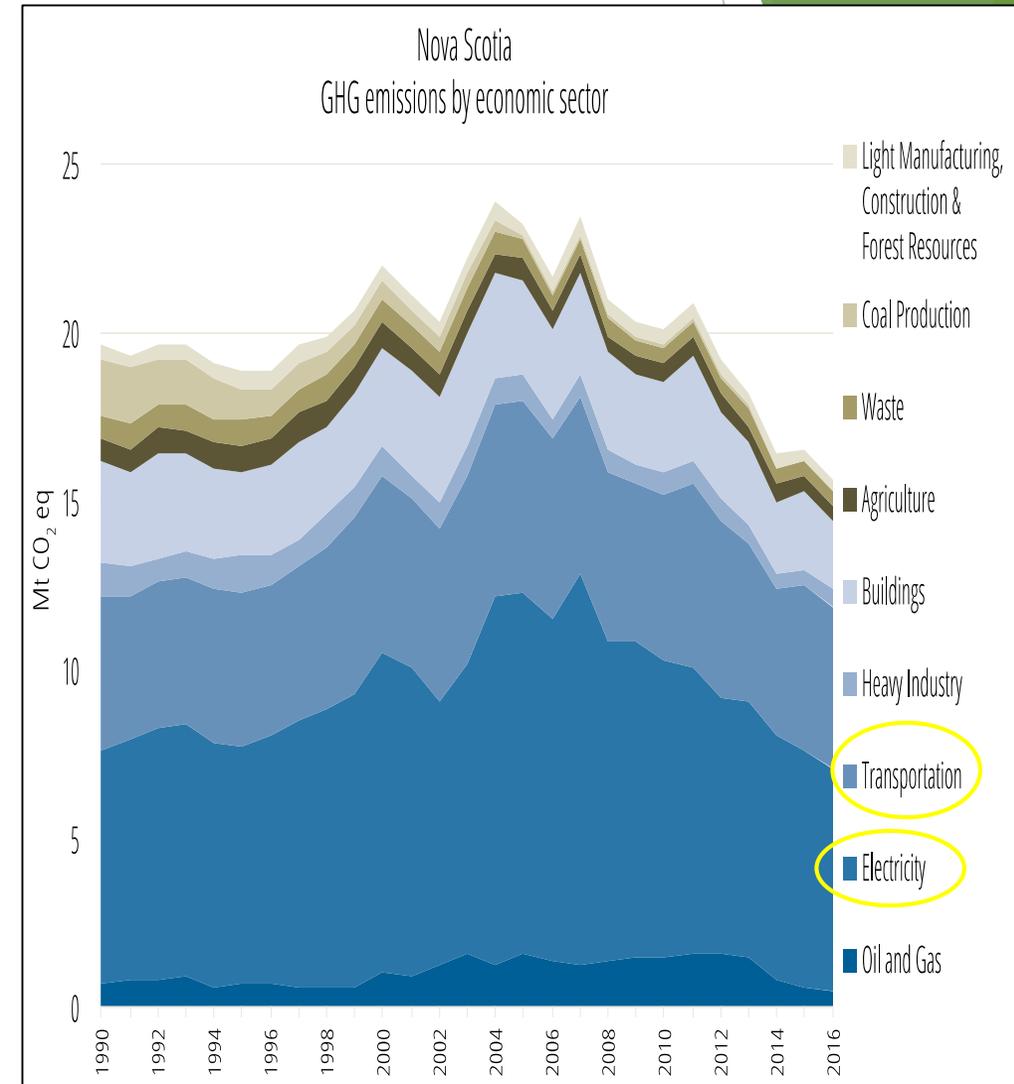
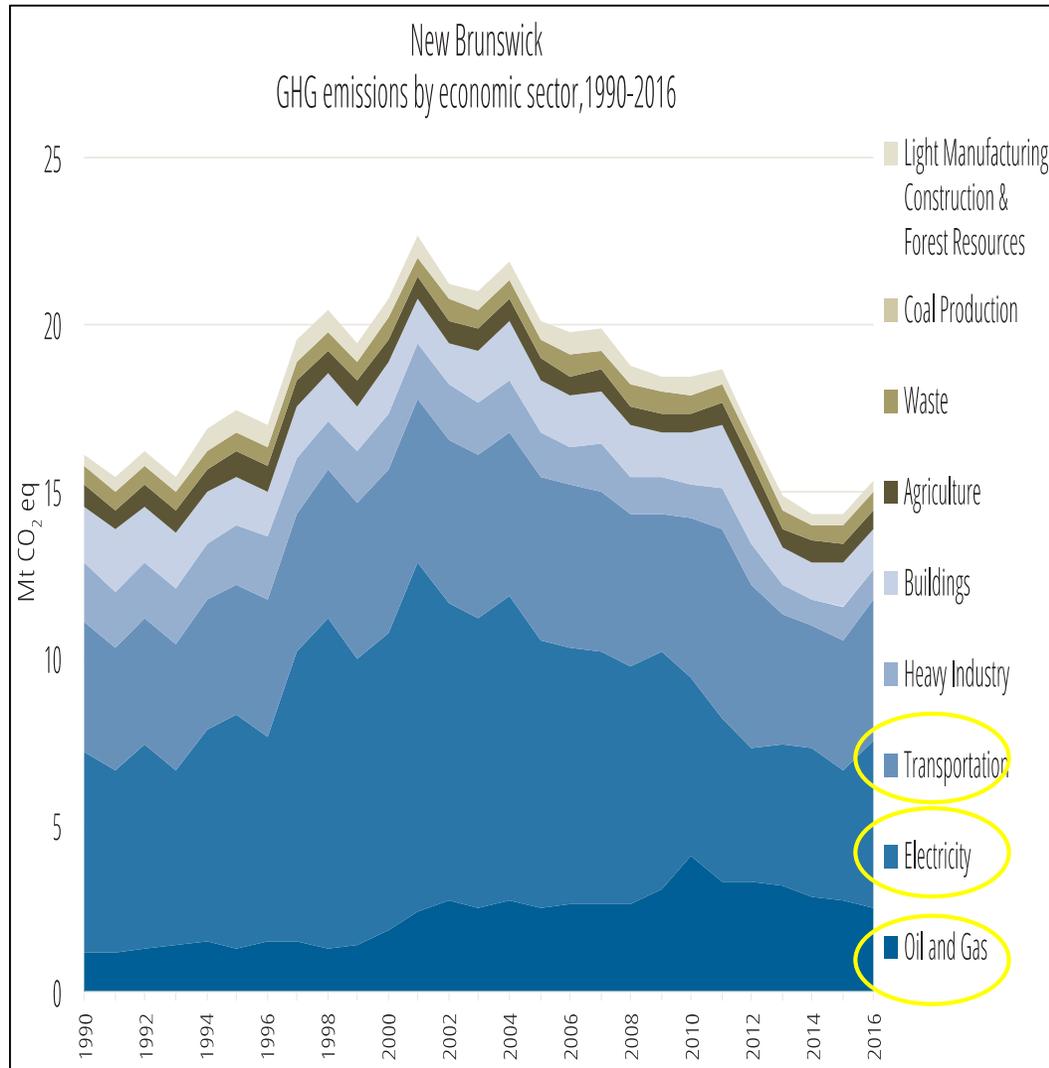
References: Module 4, CAPE Climate Change Toolkit for Health Professionals

GHG Emission Trends by Sector - BC & AB



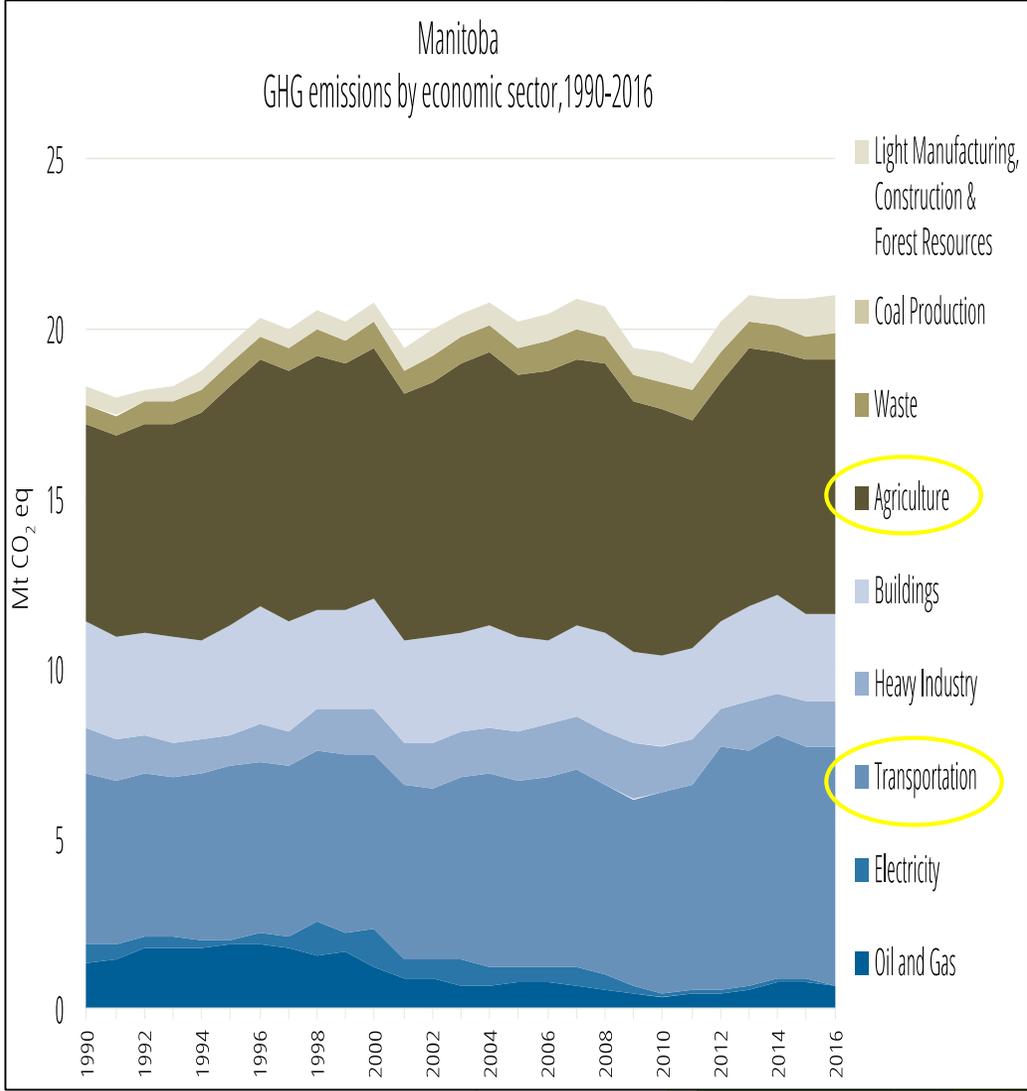
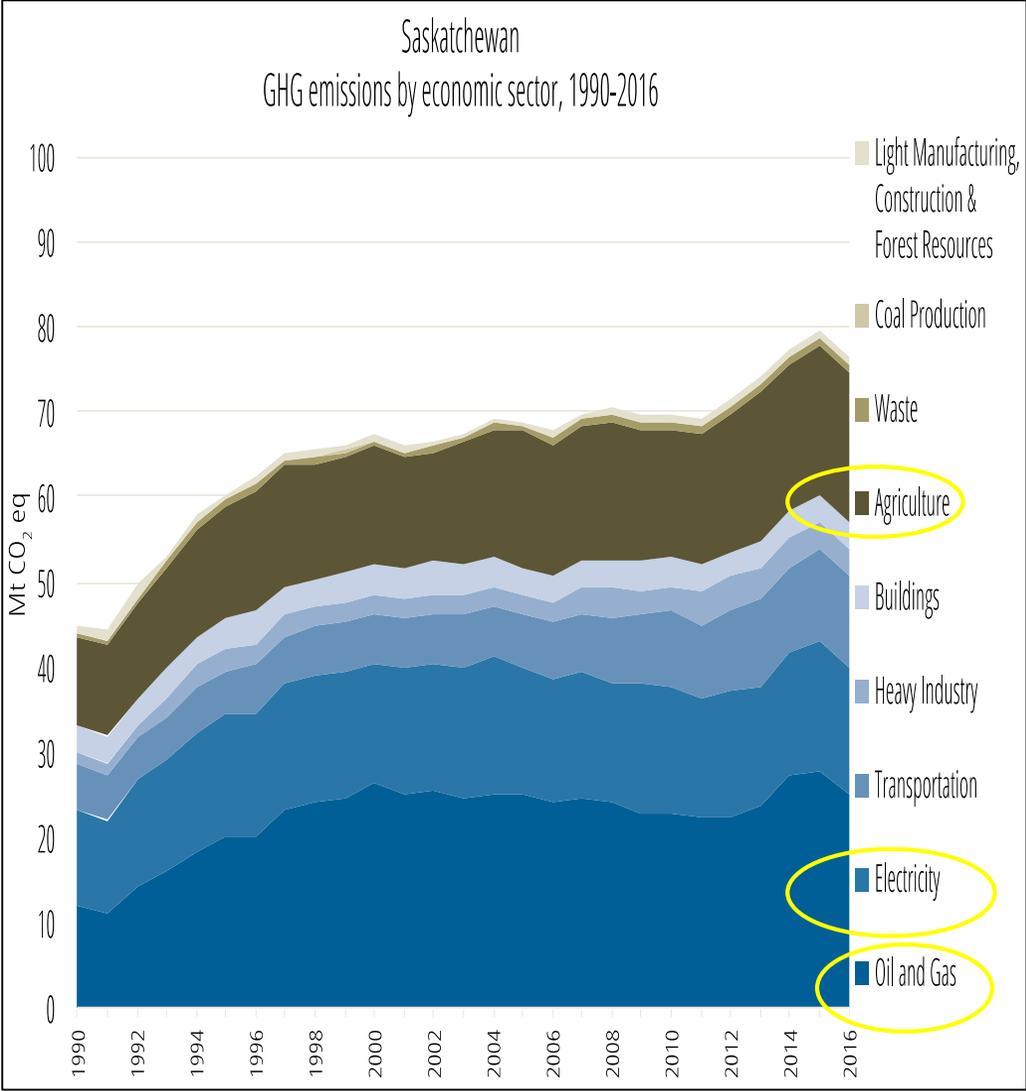
References: Module 4, CAPE Climate Change Toolkit for Health Professionals

GHG Emission Trends by Sector - NB & NS

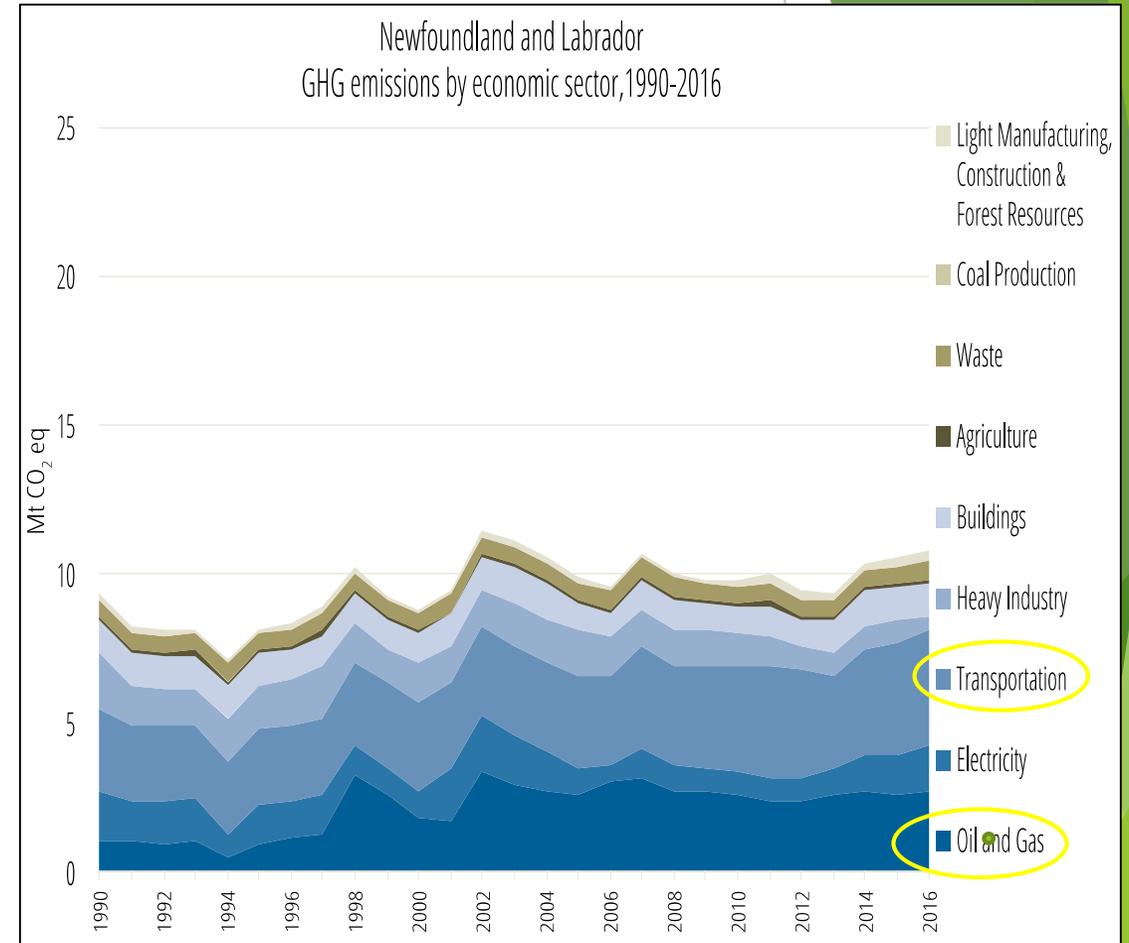
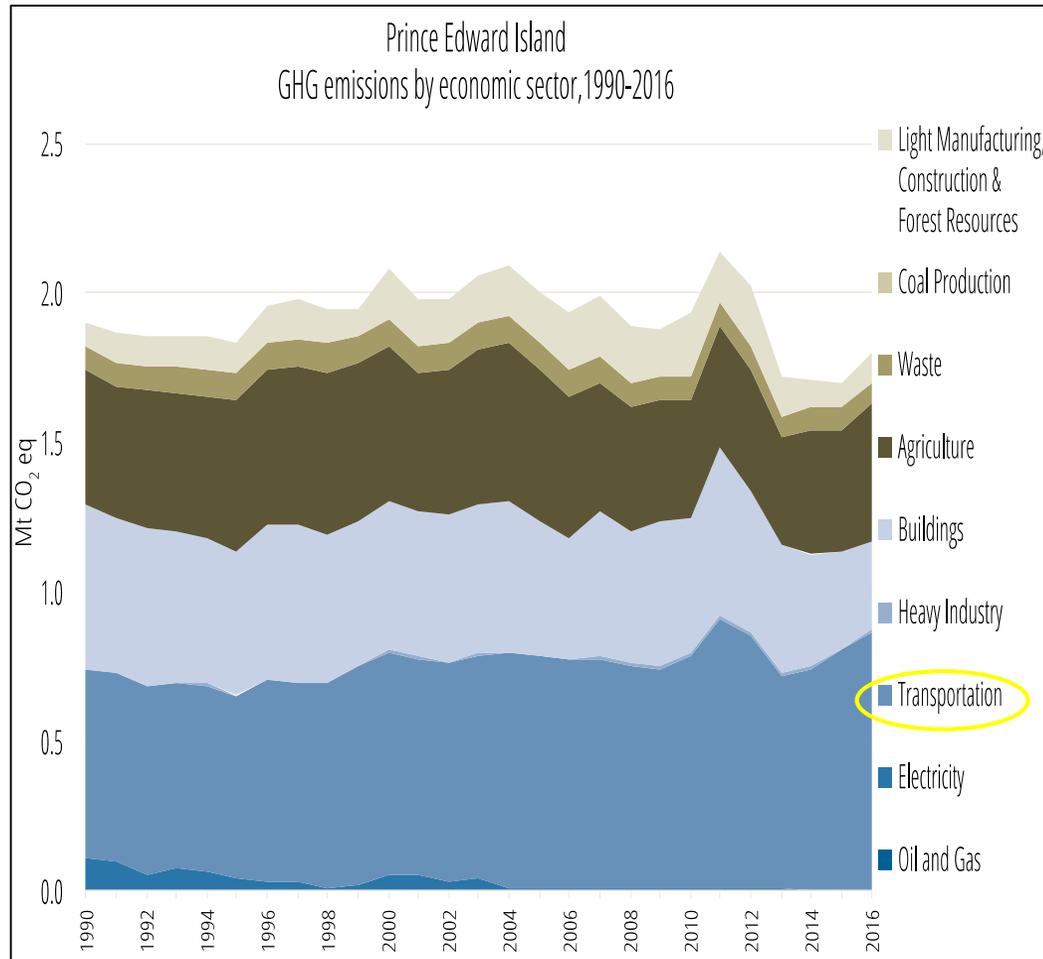


References: Module 4, CAPE Climate Change Toolkit for Health Professionals

GHG Emission Trends by Sector - Sask & Man

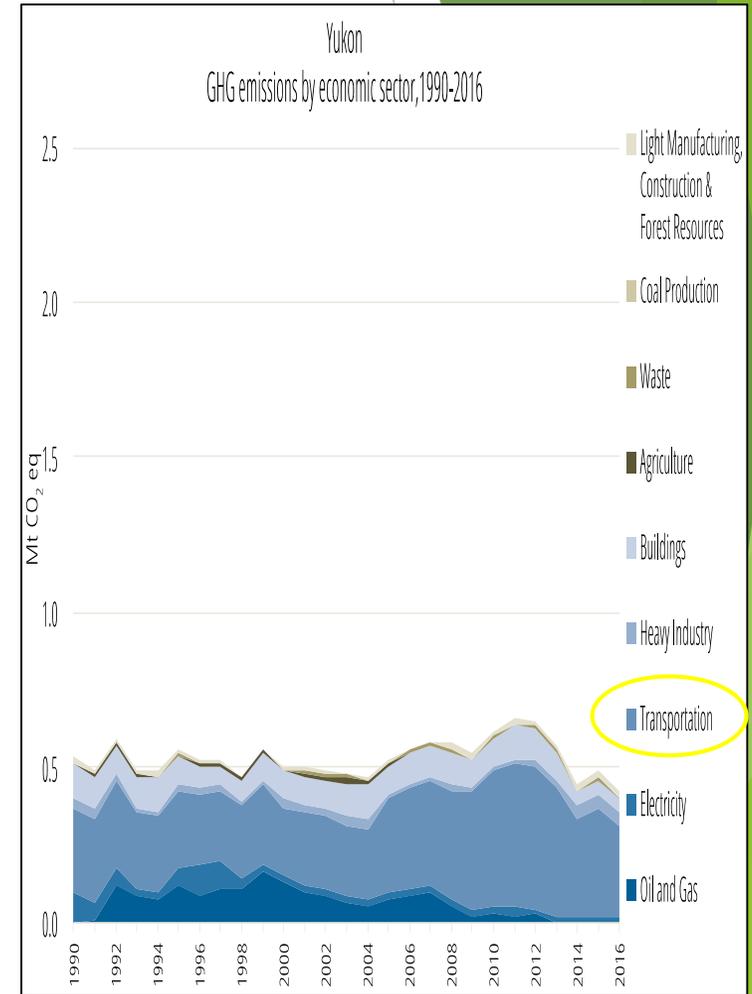
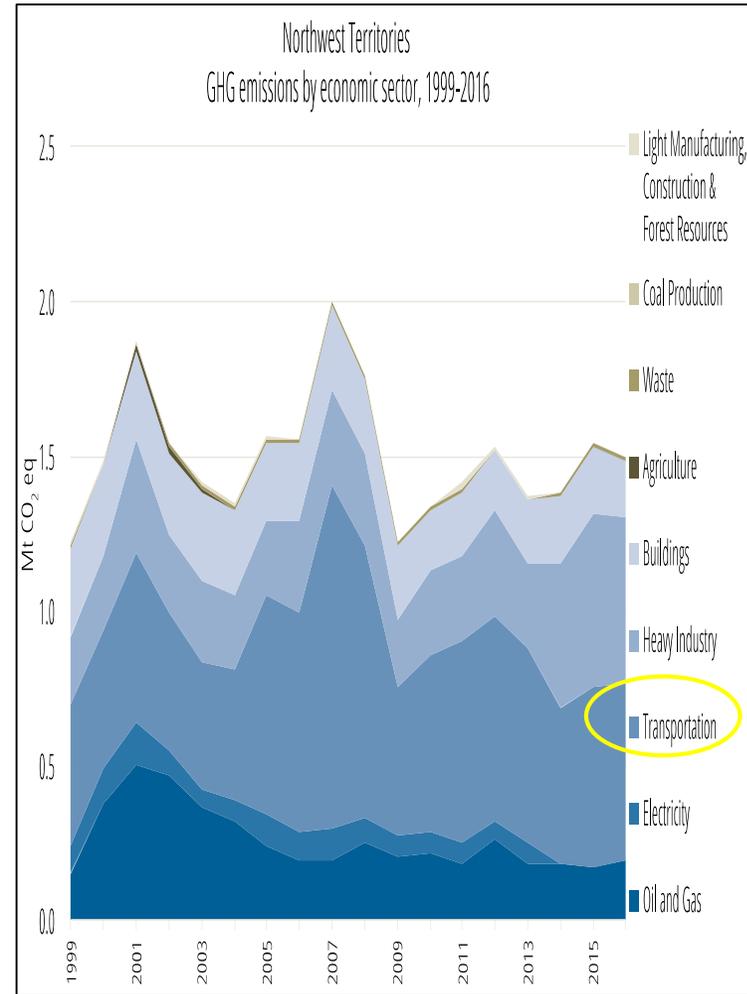
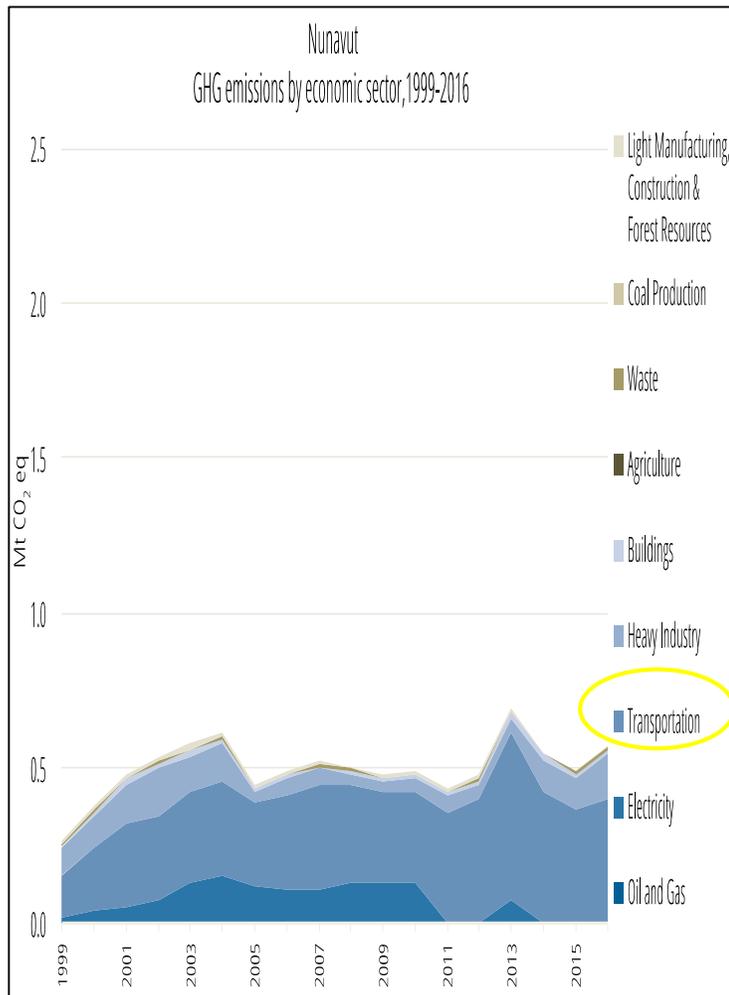


GHG Emission Trends by Sector - PEI & NL



References: Module 4, CAPE Climate Change Toolkit for Health Professionals

GHG Emission Trends by Sector - NT, NWT, Yukon



Climate Solutions with Health Co-Benefits

▶ Renewable Energy

- ▶ Eliminate nuclear, coal phase-out, reduce oil and gas use and development (i.e. fracking)

▶ Sustainable Transportation

- ▶ Transit, Cycling, Walking, Transit and Cycling-Supportive Urban Development, Electric Vehicles

▶ Energy Efficiency

- ▶ Building Codes, Retrofit Programs, Industry Programs

▶ Sustainable Agriculture

- ▶ Low-meat diet, sustainable agricultural practices

Immediate Health Co-Benefits for Canadians from Climate Solutions - Improve Air Quality

- ▶ Chronic exposure to PM2.5 (air pollutant) from burning fossil fuels - responsible for **7,100 premature deaths & \$53.5 billion** in health-related costs per year.
- ▶ Air Pollution-Related Health benefits from:
 - ▶ Public transit & cycling
 - ▶ Electric vehicles
 - ▶ Compact urban design
 - ▶ Renewable energy
 - ▶ Energy efficiency
 - ▶ Reduced extraction of oil and gas



Photo: Kim Perrotta, Solar Retrofit on Garage in Haliburton & Streetcar, Toronto

Immediate Health Co-Benefits for Canadians from Climate Solutions - Increase Physical Activity

- ▶ Chronic diseases costing Canada about **\$200 billion per year** in treatment and lost-time
- ▶ Invest in public transit, cycling, walking & compact urban form to:
 - ▶ Increase physical activity
 - ▶ Reduce rates of CVD, premature deaths & health care costs
 - ▶ Reduce GHGs
- ▶ Also increases social equity & access

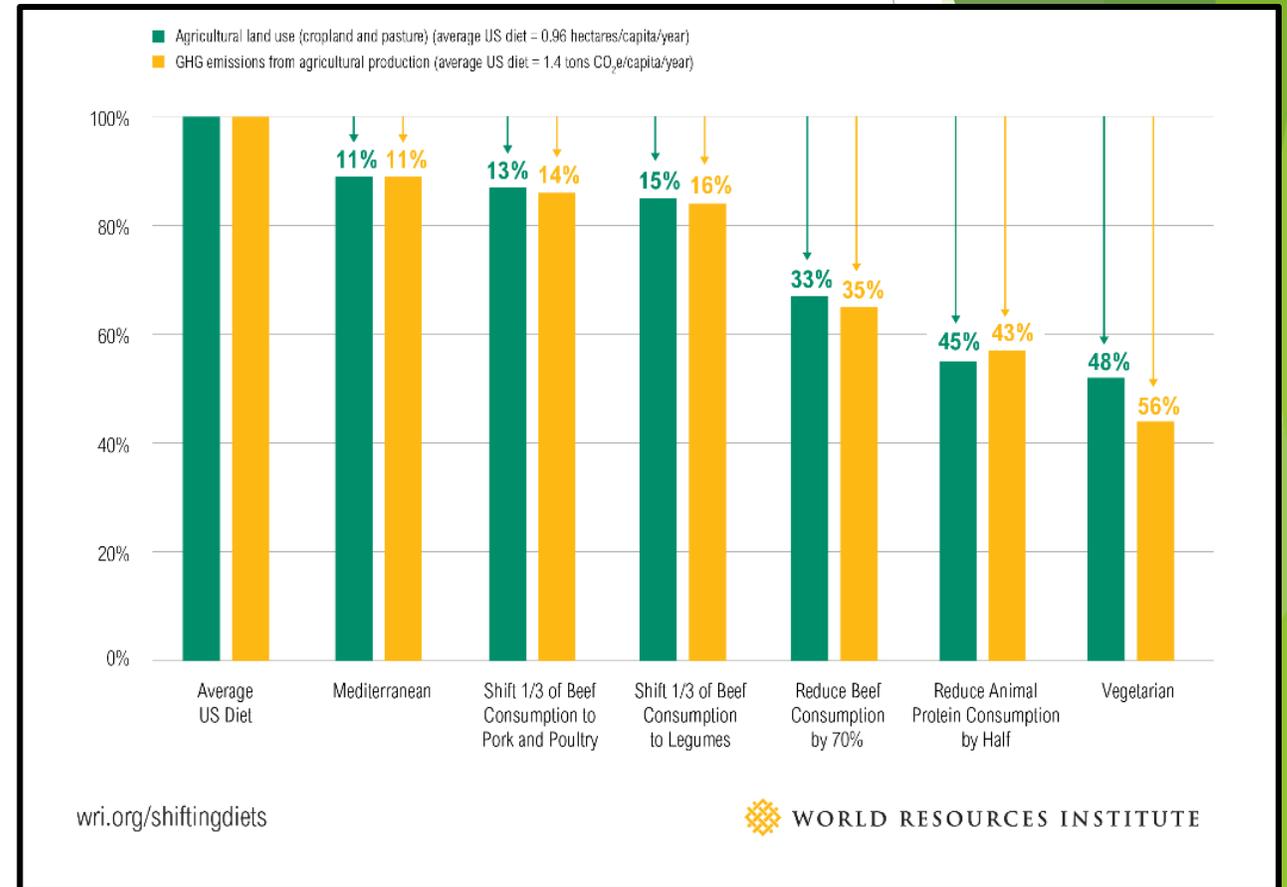
<https://cape.ca/campaigns/healthy-communities/healthy-sustainable-travel/active-travel-toolkit/>



Photo: Kim Perrotta, Pedestrians, Toronto & Cyclists, Ottawa.

Immediate Health Co-Benefits for Canadians from Climate Solutions - Reduce Meat Consumption

- ▶ Chronic diseases costing Canada about **\$200 billion per year** in treatment and lost-time
- ▶ Promote diets rich in plant-based proteins to:
 - ▶ Reduce rates of obesity
 - ▶ Reduce rates of heart disease, diabetes, some cancers & health care costs
 - ▶ Reduce GHGs



Round Table Discussion #2

- ▶ Given climate emissions and health priorities in your region, what climate solutions should be given the highest priority in your region?
- ▶ How might you get involved in those solutions - personally or professionally?
- ▶ What partners might could you work with to increase your effectiveness?



Photo: Tornado, Ottawa, Thinkstock

Canadians Care about Climate Change

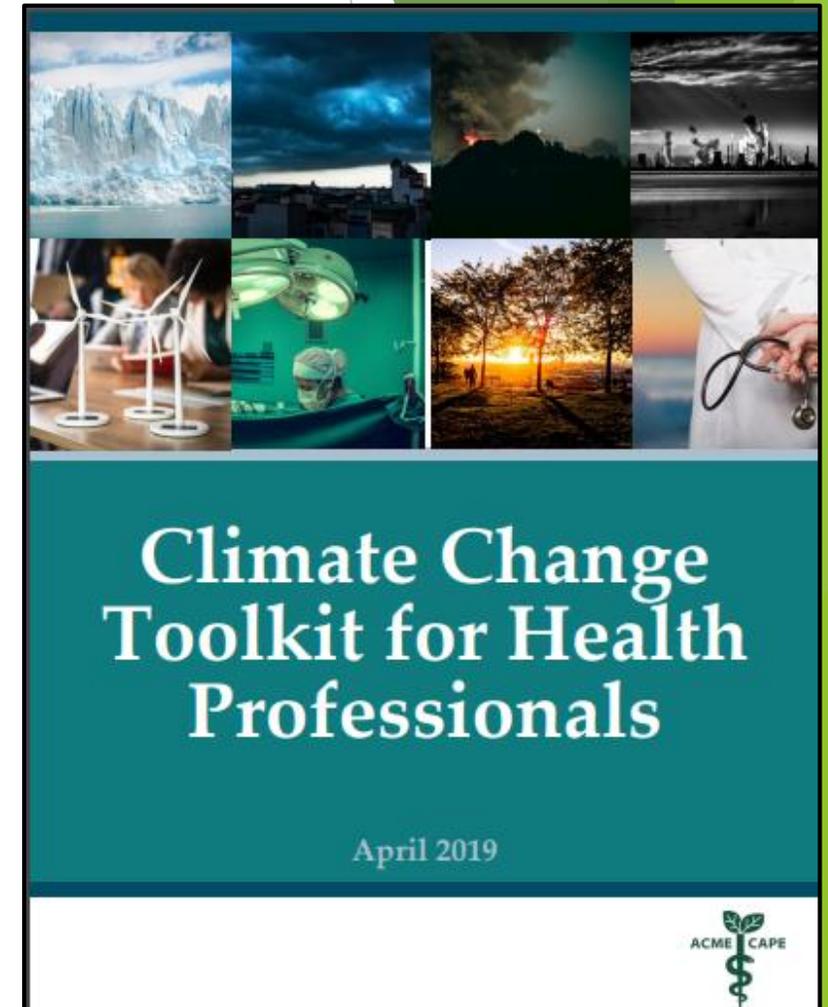
- ▶ **70% of Canadians believe that human activity is responsible for climate change (Abacus Data, 2018)**
- ▶ **90% of Canadians believe that: “More intense heat waves, floods and wildfires make climate change harmful to health” (EcoAnalytics, 2018)**
- ▶ **Almost 90% of Canadians are willing to change their behaviour to help fight climate change (Ikea and Toronto-based Globe-Scan 2019)**



Photo: Kim Perrotta, Ice Storm, Newmarket, Ontario

Engage in Local Climate Solutions

- ▶ **New Climate Change Toolkit for Health Professionals - 8 Modules & 7 Factsheets**
 - ▶ Climate Science & Commitments
 - ▶ Global Health Impacts
 - ▶ Health Impacts in Canada
 - ▶ Emission Trends Across Canada
 - ▶ Health Co-Benefits of Climate Solutions
 - ▶ Addressing Climate Change in Health Care Facilities
 - ▶ Preparing for Climate Change in our Communities
 - ▶ Engaging as Health Professionals
- ▶ <https://cape.ca/campaigns/climate-health-policy/climate-change-toolkit-for-health-professionals/>
- ▶ <https://cape.ca/campaigns/climate-health-policy/boite-a-outils-sur-les-changements-climatiques-pour-les-professionnels-de-la-sante/>



What can you Do to Fight Climate Change?

- ▶ Endorse our Call to Action <https://cape.ca/take-action/call-to-action/>
- ▶ Call your Member of Parliament (MP)
- ▶ Send him/her our Call to Action.
- ▶ Version française ici: Appel à l'Action



Endorse Call to Action on Climate Change & Health

Climate Change is Harming Human Health

On February 5th, CAPE, in collaboration with the Canadian Medical Association (CMA), the Canadian Nurses Association (CNA), the Urban Public Health Network (UPHN), and the Canadian Public Health Association (CPHA), released a **Call to Action on Climate Change and Health** and **Appel à l'Action concernant le Changement Climatique et la Santé**. **We are calling on all national political parties in Canada to make a commitment to keep global warming below 1.5 degrees C and we need your help.**

Climate change is already harming the mental and physical health of Canadians with air pollution, emergency evacuations, power shortages, food insecurity, insect-borne diseases, and with floods, tornados, hurricanes, wildfires and heatwaves that are more frequent and more intense.

Globally, climate change is having a devastating impact on human health. The World Health Organization estimates that heat waves, insect-borne diseases, malnutrition, and infectious diseases alone will claim 250,000 lives per year by 2030.

Take Action and stand up for health and the environment today! Sign below and add your voice to improve the health of people by protecting the planet.

FIRST NAME *

LAST NAME *

EMAIL *

ADD ME TO YOUR MAILING LIST

YES, I ACCEPT YOUR PRIVACY POLICY *

SIGN NOW

Support Students in “Fridays for Future Canada”



Fridays For Future Canada @FFFCanada · Mar 19

Replying to @CAPE_Doctors @courtghoward and 2 others

The youth have only just begun.
Canada needs your help.
Please circle the date #May3.
In January the #FridaysForFuture strikers determined we would sister strike on #March15 with the world & national strike #May3.
Join FB event to get notifications
facebook.com/events/7977313...

**Canada's National
#FridaysForFuture
#SchoolStrike
Friday, May 3, 2019**

Registration available details after April 10

Everyone around the world please join us.
It is an election year in Canada. Collectively we need to raise consciousness of the urgency of this climate crisis.



Vote in the Federal Election

- ▶ We have 11 years to reduced Global Emissions by 45% to prevent catastrophic levels of Climate change.
- ▶ The Members of Parliament (MPs) elected in 2019 will be responsible for setting the Target required for Canada and creating the policies and programs needed to realize it.



Disclosure Statement

- ▶ We have no affiliation (financial or otherwise) with a pharmaceutical, medical device or communications organization.



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