

January 19, 2022

To: Chrystia Freeland, Deputy Prime Minister & Minister of Finance

CC: Jonathan Wilkinson, Minister of Natural Resources
Steven Guilbeault, Minister of Environment and Climate Change

Letter from scientists, academics, and energy system modellers: Prevent proposed CCUS investment tax credit from becoming a fossil fuel subsidy

Dear Deputy Prime Minister,

As scientists, academics, and energy system modellers we are deeply concerned with the government's proposal to introduce a new investment tax credit for carbon capture, utilization and storage (CCUS).

We urge you to not introduce the proposed investment tax credit for CCUS because it will constitute a substantial new fossil fuel subsidy. As well as undermining government efforts to reach net-zero by 2050, the introduction of this tax credit would contradict the promise made by your government to Canadians during the election period to eliminate fossil fuel subsidies by 2023 as well as our international commitments under the Paris Agreement. And once new subsidies are put in place, they are very hard to repeal.

Effective solutions to achieve deep emission reductions in the next decade along a pathway to zero emissions are already at hand, including renewable energy, electrification and energy efficiency. Funding CCUS diverts resources from these proven, more cost effective solutions that are available on the timeframes required to mitigate climate change.

Despite decades of research, CCUS is neither economically sound nor proven at scale, with a terrible track record and limited potential to deliver significant, cost-effective emissions reductions.¹ For example, one of Canada's flagship CCUS projects, Boundary Dam 3, initially promised a capture rate of 90%. It never reached that rate, so SaskPower eventually lowered its expectations to 65%—a target the facility still regularly fails to meet.² Current global carbon capture capacity is 39 MT; 0.1% of annual emissions from fossil fuels.³ Yet for CCUS to play a significant role in achieving the Paris Agreement goal, gigatonnes (Gt) of CO₂ would need to be captured and permanently stored. Moreover, CCUS remains prohibitively expensive, while the

¹ Anderson, K. & Peters, G. (2016) The trouble with negative emissions. *Science*, 354(6309). Available: <https://www.science.org/doi/full/10.1126/science.aah4567>

² Schlissel, D. (2021) Boundary Dam 3 Coal Plant Achieves Goal of Capturing 4 Million Metric Tons of CO₂ but Reaches the Goal Two Years Late. IEEFA. Available: <https://ieefa.org/ieefa-saskpower-hits-carbon-capture-goals-at-boundary-dam-3-more-than-two-years-late/>

³ Garcia Freites, S. & Jones, C. (2020) A Review of the Role of Fossil Fuel Based Carbon Capture and Storage in the Energy System. Friends of the Earth Scotland. Online: https://foe.scot/wpcontent/uploads/2021/01/CCS_REPORT_FINAL.pdf

costs of renewables have plummeted to the point that they are cheaper than fossil fuels.⁴ So unsurprisingly, over 80% of CCUS projects in the United States have failed.⁵

Carbon capture for the oil and gas sector is not a climate solution. At best, it prevents some carbon dioxide from polluting facilities from reaching the atmosphere, but it is not a negative emissions technology. Despite the billions of taxpayer dollars spent by governments globally on CCUS, the technology has not made a dent in CO₂ emissions. Nor is it anticipated to expand to the scale needed: for this reason, the Intergovernmental Panel on Climate Change (IPCC) points to uncertainty in the future deployment of CCUS and cautions against reliance on the technology.⁶

Carbon capture methods are being used to boost oil production, and have therefore resulted in increased emissions.⁷ The only existing commercially available market for captured carbon is enhanced oil recovery, whereby CO₂ is injected into depleted underground oil reservoirs to boost oil production—extraction that otherwise wouldn't have been possible. Globally 80% of captured carbon is being used for enhanced oil recovery.⁸ In addition, CCUS does not address downstream emissions, which constitutes 80% of oil and gas emissions.

Furthermore, CCUS does not address environmental, social and health impacts associated with the mining, extraction, and transport of fossil fuels, faced primarily by Indigenous and front-line communities.⁹ The buildout of CCUS infrastructure would require an enormous system of pipelines to transport the carbon. This presents serious health, safety, and environmental risks, particularly for marginalized frontline communities, which are already overburdened by industrial hazards. For example, when a CO₂ pipeline ruptured in Mississippi in 2020, 300 people were evacuated and 45 people had to be hospitalized.¹⁰

Finally, CCUS is financially risky. Safe, permanent, and verifiable storage of CO₂ is difficult to guarantee. The financial and liability risks related to carbon storage are highly likely to be transferred from the private sector to the public.

⁴ Luderer, G. et al. (2021) Impact of declining renewable energy costs on electrification in low-emission scenarios. *Nature Energy*. Available: <https://doi.org/10.1038/s41560-021-00937-z>

⁵ Abdulla et al. (2021) Explaining successful and failed investments in U.S. carbon capture and storage using empirical and expert assessments. *Environmental Research Letters*. Available: <https://iopscience.iop.org/article/10.1088/1748-9326/abd19e/pdf>

⁶ IPCC, Summary for Policymakers in IPCC, *Global Warming of 1.5°C: An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* (2018) Ch. 5, Section 5.4.1.2.

⁷ Sekera, J. & Lichtenberger, A. (2020) *Assessing Carbon Capture: Public Policy, Science, and Societal Need: A Review of the Literature on Industrial Carbon Removal*. *Biophysical Economics and Sustainability*. Available: <https://link.springer.com/article/10.1007/s41247-020-00080-5>

⁸ Garcia Freites, S. & Jones, C. (2021) *A Review of the Role of Fossil Fuel-Based Carbon Capture and Storage in the Energy System*, Tyndall Centre. Online: https://www.research.manchester.ac.uk/portal/files/184755890/CCS_REPORT_FINAL_v2_UPLOAD.pdf

⁹ Donaghy, T. & Jiang, C. (2021) *Fossil Fuel Racism: How phasing out oil, gas and coal can protect communities*. Greenpeace. Available: <https://www.greenpeace.org/usa/reports/fossil-fuel-racism/>

¹⁰ Zegart, D. (2021) *Gassing Satartia: Carbon Dioxide Pipeline Linked to Mass Poisoning*. *The Huffington Post*. Available: https://www.huffpost.com/entry/gassing-satartia-mississippi-co2-pipeline_n_60ddea9fe4b0ddef8b0ddc8f

Put simply, rather than replacing fossil fuels, carbon capture prolongs our dependence on them at a time when preventing catastrophic climate change requires *winding down* fossil fuel use. Relying on CCUS preserves status quo fossil fuel development, which must be curtailed to meet global climate commitments.¹¹ Introducing a tax credit for CCUS for the energy sector will lock-in continued dependence on Canada's largest and most rapidly growing source of greenhouse gas emissions. Indeed, numerous modelling studies show that Canada is not on track to meet its climate change targets and this is in part due to Canada's current approach of leaning too much on short-term solutions that promote more efficient use of fossil fuels.¹²

The creation of a CCUS investment tax credit will not be an effective way to reduce emissions. **We strongly urge you not to introduce the tax credit.** If the Government of Canada proceeds with the tax credit, it must meet the following conditions:

- Enhanced oil recovery projects should not be eligible for the tax credit. Only 'permanent' storage projects should be considered.
- The tax credit should only be made available for sectors for which there are no decarbonization options. Oil and gas projects, including fossil or blue hydrogen, as well as plastics and petrochemical production, should not be eligible for the credit.
- The implementation of a tax credit must be contingent on the development of independent monitoring, reporting, verification, and enforcement requirements.
- The development of a governance structure to maintain and ensure the long-term environmental and fiscal integrity of CO₂ storage sites should be in place prior to the implementation of a CCUS tax credit.
- Companies receiving tax credits must be held accountable to mitigate harmful impacts on Indigenous and frontline communities, and provide compensation where mitigation is not possible. These communities must be involved in the design and implementation of the tax credit.

Canada can learn from the mistakes of how a similar tax credit—Section 45Q—was implemented in the US. The biggest beneficiaries of the American tax credit are oil companies.¹³ Analysis done on the 45Q tax credit found it could result in at least an additional 400,000 barrels per day of CO₂-enhanced oil production in the United States by 2035, which would directly lead to as much as 50.7 million metric tons of net CO₂ emissions annually—and possibly far more.¹⁴ The issue of companies claiming credits for unverified tons of captured carbon is rampant in the United States under Section 45Q. In fact, an investigation by the US Internal Revenue Service

¹¹ Welsby, D., Price, J., Pye, S., & Ekins, P. (2021). Unextractable fossil fuels in a 1.5 °C world. *Nature*, 597(7875), 230–234. <https://doi.org/10.1038/s41586-021-03821-8>

¹² Langlois-Bertrand, S. *et al.* (2021). Canadian Energy Outlook 2021 — Horizon 2060. Institut de l'énergie Trottier and e3c Hub. Available: <http://iet.polymtl.ca/energy-outlook/>

¹³ CIEL (2021) Confronting the Myth of Carbon-Free Fossil Fuels: Why Carbon Capture Is Not a Climate Solution. Available: <https://www.ciel.org/reports/carbon-capture-is-not-a-climate-solution/>

¹⁴ Oil Change International (2017) Expanding Subsidies for CO₂-Enhanced Oil Recovery: A Net Loss for Communities, Taxpayers, and the Climate. Online: <http://priceofoil.org/content/uploads/2017/10/45q-analysis-oct2017-final.pdf>

found that 87% of the total credits claimed, amounting to nearly US \$1 billion, were not in compliance with the Environmental Protection Agency.¹⁵

Deploying CCUS at any climate-relevant scale, carried out within the short timeframe we have to avert climate catastrophe without posing substantial risks to communities on the frontlines of the buildout, is a pipe dream. We must instead move forward with proven climate solutions that will contribute the most to emissions reductions: increased electrification, wide-scale use of renewable energy, and intensifying energy efficiency.

Sincerely,

Dr. Christina E. Hoicka, Canada Research Chair, Associate Professor, Geography and Civil Engineering, University of Victoria

Dr. Matthew Paterson, Canadian-nominated IPCC lead author, University of Manchester (formerly University of Ottawa)

Dr. Angela Carter, Associate Professor, Department of Political Science & Balsillie School of International Affairs, University of Waterloo

Dr. Jason MacLean, Assistant Professor, Faculty of Law, University of New Brunswick, and Adjunct Professor, School of Environment and Sustainability, University of Saskatchewan

Dr. Emily Eaton, Associate Professor, Department of Geography and Environmental Studies, University of Regina

Dr. Thomas Homer-Dixon, University Research Chair, University of Waterloo; Director, Cascade Institute, Royal Roads University

Dr. Kyla Tienhaara, Canada Research Chair in Economy and Environment, School of Environmental Studies and Department of Global Development Studies, Queen's University

François Delorme, Département de sciences économiques, Université de Sherbrooke

Dr. Laurie Adkin, Professor, Political Science, Environmental Studies Program, University of Alberta

Dr. Mark Winfield, Professor, Co-Chair Sustainable Energy Initiative, Faculty of Environmental and Urban Change, York University

Milind Kandlikar, Professor and Director, Institute for Resources, Environment and Sustainability, University of British Columbia

Dr. Makere Stewart-Harawira, Indigenous, Environmental and Global Studies, College of Social Sciences and Humanities, University of Alberta

Dr. Steven Moore, Assistant Professor, Smith School of Business and School of Environmental Studies, Queen's University

Dr. Adam Fenech, School of Climate Change and Adaptation, University of Prince Edward Island

Dr. Dianne Saxe, former Environmental Commissioner of Ontario, Saxe Facts

¹⁵ Inspector General for Tax Administration (April 2020) Department of Treasury Letter. Online: https://www.eenews.net/assets/2020/04/30/document_gw_07.pdf

Simon Langlois-Bertrand, PhD, MEng, Research Associate, Institut de l'énergie Trottier
Professor Ann Dale, Director, School of the Environment & Sustainability, Royal Roads
University, Canada Research Chair, Trudeau Alumna
Dr. Lori Lee Oates, Instructor, Humanities and Social Science, Memorial University of
Newfoundland and Labrador
Dr. J. P. Sapinski, Assistant Professor of Environmental Studies, Université de Moncton
Dr. Jessica F. Green, University of Toronto
Dr. Kate J. Neville, Associate Professor, Department of Political Science and School of the
Environment, University of Toronto
Dr. Olaf Weber, School of Environment, Enterprise and Development, University of Waterloo
Dr. David R. Boyd, Professor, Institute for Resources, Environment and Sustainability, School of
Public Policy and Global Affairs, UN Special Rapporteur on human rights and the
environment
Dr. Laura Tozer, Assistant Professor, Department of Physical and Environmental Sciences,
University of Toronto Scarborough
Justin Leroux, Professor of Applied Economics, HEC Montréal
Dr. Philippe Le Billon, School of Public Policy and Global Affairs, University of British Columbia
Dr. Amy Janzwood, Postdoctoral Research Fellow, Department of Political Science, University
of British Columbia
Dr. Gavin Fridell, Canada Research Chair and Professor in International Development Studies,
Saint Mary's University
Dr. Matthew Hoffmann, Political Science, University of Toronto Scarborough, Co-Director
Environmental Governance Lab
Dr. C. Willem Langenberg, Department of Earth and Atmospheric Sciences, University of
Alberta
Dr. Debra J. Davidson, Professor of Environmental Sociology, University of Alberta
Dr. Julie MacArthur, Canada Research Chair, School of Business, Royal Roads University
Dr. Damon Matthews, Professor and Concordia University Research Chair
Dr. Ryan M. Katz-Rosene, Associate Professor, School of Political Studies, University of Ottawa
Dr. Jessica Dempsey, Department of Geography, University of British Columbia
Dr. Justin Paulson, Director, Institute of Political Economy, Carleton University
Dr. William K. Carroll, Professor of Sociology, University of Victoria
Dr. Madhur Anand, Director Guelph Institute for Environmental Research, Professor, School of
Environmental Sciences, University of Guelph
Dr. Jean-Frédéric Morin, Political science, Université Laval
Dr. Eric Pineault, Professeur et Président du comité scientifique, Institut des sciences de
l'environnement, Université du Québec à Montréal
Frederic Fabry, Director, Bieler School of Environment, McGill University
Dr. David Wilkinson, Canada Research Chair, University of British Columbia, Fellow of the
Royal Society of Canada and the Canadian Academy of Engineering, Order of Canada
Dr. Nathalie Chalifour, Professor, Faculty of Law, University of Ottawa
Dr. Danny Harvey, IPCC Lead Author, Working Group III, AR4 and AR5, Dept of Geography,
University of Toronto
Steven Bernstein, Political Science, Munk School of Global Affairs and Public Policy, University

of Toronto
Martin Olszynski, Associate Professor, University of Calgary Faculty of Law
Dr. Robert Godin, Assistant Professor, Department of Chemistry, The University of British Columbia
Dr. John Robinson, Professor, Munk School of Global Affairs and Public Policy, and School of the Environment, University of Toronto
Dr. Joshua McEvoy, Political Studies, Queen's University
Animesh Dutta; PhD, P. Eng, Professor and Director, Bio-Renewable Innovation Lab, School of Engineering, University of Guelph
Dr. Nina Hewitt, Department of Geography, University of British Columbia
Dr. Simon Dalby, Professor, Balsillie School of International Affairs, Wilfrid Laurier University
Dr. Jillian Buriak, Professor of Chemistry, Canada Research Chair of Nanomaterials for Energy, University of Alberta
Dr. Sara Cannon, Department of Geography, University of British Columbia
Dr. Bernard Soubry, Postdoctoral researcher, Global Land and Food Lab, McGill University
Dr. Trevor W. Harrison, Professor of Sociology, University of Lethbridge
Dr. Siobhán McPhee, Department of Geography, University of British Columbia
Douglas Robb, PhD Candidate, Department of Geography, University of British Columbia
Dr. Geraldine Pratt, Canada Research Chair, Care Economies and Global Labour, University of British Columbia
Dr. Jose Carlos Marques, Telfer School of Management, University of Ottawa
Dr. Hester Jiskoot, Professor, Department of Geography & Environment, University of Lethbridge
Dr. Graeme Wynn, Professor Emeritus, Geography, University of British Columbia
Dr. Lisa P. Nathan, School of Information, University of British Columbia
Dr. Paul Bowles, Department of Global and International Studies and School of Economics, University of Northern British Columbia
Dr. Glen Hvenegaard, Professor, Environmental Science, University of Alberta
Robert L. Ascah, PhD, Research Fellow, The Parkland Institute, University of Alberta
Dr. Thomas Gunton, Professor, Director of the Resource and Environmental Planning Program, Simon Fraser University
Dr. Susan Jane Spronk, School of International Development and Global Studies, University of Ottawa
Prof. Thomas Burelli, Co-director of the Centre for Environmental Law and Global Sustainability, Civil Law Section, University of Ottawa
Dr. Mariano Koen-Alonso, Adjunct Professor, Memorial University; Research scientist, Fisheries and Oceans Canada
David McRobert, Retired Adjunct Professor, Faculty of Environmental and Urban Change, York University, In-House Counsel, Environmental Commissioner of Ontario (1994-2010)
Dr. Rianne Mahon, Distinguished Research Professor, School of Public Policy & Administration, Carleton University
Dr. Harriet Friedmann, Professor Emeritus of Sociology, Munk School of Global Affairs and Public Policy
Dr. Carolyn Sale, Associate Professor, University of Alberta

Dr. Emily Scott, Postdoctoral researcher, McGill University
Dr. Alison Munson, Département des sciences du bois et de la forêt, Université Laval
Dr. Josee Provencal, Polémos, University of Ottawa
Dr. David Cooper, Business, University of Alberta
Dr. Anne Pasek, Canada Research Chair (Tier II) in Media, Culture and the Environment,
Assistant Professor, Department of Cultural Studies and the Trent School of the
Environment, Trent University
Dr. Liisa North, Professor Emerita, Department of Politics, York University
Dr. Shelagh Campbell, Professor Emerita, Biological Sciences, University of Alberta
Dr. Sébastien Jodoin, McGill University, Faculty of Law
Dr. Mark Simpson, Professor, English and Film Studies, University of Alberta
Dr. Juliane Collard, Geography Department, University of British Columbia
Dr. Christopher Aikman, National Research Council Canada (retired)
Dr. Martin Sharp, FRSC, Earth and Atmospheric Sciences, University of Alberta
Dr. Selena Couture, Drama Dept., University of Alberta
Prof. Joshua Mostow, FRSC Dept. of Asian Studies, University of British Columbia
Dr. Rosemary Collard, Geography, Simon Fraser University
Erik Post, PhD Candidate, University of British Columbia
Dr. Martin Jagersand, Professor, Computer Science, University of Alberta
Dr. Marcus Taylor, Head of Department, Global Development Studies, Queen's University
Dr. Petra Fachinger, Professor, English Department, Queen's University
Dr. Barry Stephenson, Department of Religious Studies, Memorial University
Dr. Byron Miller, Department of Geography, University of Calgary
Dr. Joyce Green, (Emerita) Political and International Studies, University of Regina
Dr. Chad Walker, School of Environment and Sustainability, University of Saskatchewan
Dr. Lindsay McLaren, Professor, Community Health Sciences, University of Calgary
Dr. Kate Ervine, International Development Studies, Saint Mary's University
Dr. Andrew Biro, Department of Politics, Acadia University
Dr. Gaston Gordillo, Department of Anthropology, University of British Columbia
Dr. Geoff Mann, Centre for Global Political Economy, Simon Fraser University
Dr. Kristen Pue, Postdoctoral Fellow, Carleton University
Dr. Sally Leys, Professor, Faculty of Science - Biological Sciences, University of Alberta
Allan Moscovitch, Professor Emeritus, Carleton University, School of Social Work
Dr. Noel Keough, Associate Professor Emeritus, University of Calgary
Dr. Susan O'Donnell, Adjunct Professor, Sociology, University of New Brunswick
Dr. Karena Shaw, School of Environmental Studies, University of Victoria
Dr. Donald Kingsbury, Political Science, University of Toronto
Dr. Tracy Glynn, Environment & Society, St. Thomas University
Dr. Christina Laffin, Canada Research Chair, Department of Asian Studies, University of British
Columbia
Dr. Patrick Provost, Faculty of Medicine, Université Laval
Dr. David Kahane, Professor, Department of Political Science, University of Alberta
Steve Lorteau, SJD Student, Faculty of Law, University of Toronto
Dr. Audrey Laurin-Lamothe, Department of Social Science, York University

Dr. Maria Strack, Canada Research Chair, Department of Geography and Environmental Management, University of Waterloo

Dr. Jason Laurendeau, Associate Professor of Sociology, University of Lethbridge

Dr. Meg Sears, Sr. Clinical Research Associate, Ottawa Hospital Research Institute

Dr. Ricardo Grinspun, Associate Professor of Economics, York University

Dr. Michael Church, Professor emeritus, Geography, The University of British Columbia

Joan Haysom, Electrical Engineering and Computer Science, University of Ottawa

Alexandre Gajevic Sayegh, Political Science, Université Laval

Dr. Ilan Kapoor, Professor, Faculty of Environmental & Urban Change, York University

Temitope Onifade, Vanier Scholar and Co-Chair of Liu Institute Network for Africa, University of British Columbia

Robert L. Campbell, Biomedical and Molecular Sciences, Queen's University

Dr. Sophie Del Fa, Département de communication, Université du Québec à Chicoutimi

Jaimie Baron, Department of English and Film, University of Alberta

Prof. Meenal Shrivastava, Political Economy and Global Studies, Athabasca University

Pete Brown, Centre for Aquaculture & Seafood Development, Fisheries & Marine Institute of Memorial University

Dr. Ayaka Yoshimizu, Department of Asian Studies, University of British Columbia

Dr. Fiona Nicoll, Professor, Political Science, University of Alberta

Dr. Alain Deneault, Professor, Université de Moncton

Dr. Janice Harvey, Assistant Professor, Environment & Society, St. Thomas University

Dr. Daniel Tubb, Anthropology, University of New Brunswick

Dr. Rebecca Hall, Global Development Studies, Queen's University

Dr. Chrislain Eric Kenfack, Department of Political Science, University of Alberta

Dr. Anelyse Weiler, Assistant Professor of Sociology, University of Victoria

Dr. Midori Ogasawara, Sociology, University of Victoria

Dr. Mike Gismondi, Professor Emeritus, Sociology and Global Studies, Athabasca University

Dr. John Calvert, Adjunct Professor, Simon Fraser University

Dr. Robert B. Gibson, Professor, School of Environment, Resources and Sustainability, University of Waterloo

Dr. Peter Carter, Director Climate Emergency Institute

Dr. James S. Quinn, Professor, Biology Department, McMaster University

Dr. Deborah Cowen, Professor, Geography & Planning, University of Toronto

Dr. Harvey A. Feit, FRSC, Professor Emeritus of Anthropology, McMaster University

Dr. Miriam L. Diamond, Professor, Earth Sciences; School of the Environment, University of Toronto, FRCGS, FSETAC

Dr. David Huggill, Assistant Professor, Department of Geography and Environmental Studies, Carleton University

Dr. John Peters, Interuniversity Research Centre on Globalization and Work (CRIMT), Université de Montréal

Dr. Imre Szeman, Research Professor of Environmental Communication, University of Waterloo

Dr. Eva-Lynn Jagoe, Professor, Vice-Principal of Innis College, University of Toronto

Marjorie Griffin Cohen, Professor Emeritus, Simon Fraser University

Dr. Simon Granovsky-Larsen, Associate Professor, Department of Politics and International

Studies, University of Regina

Professor Jennifer Ruth Hosek, Queen's University

Dr. Nancy B. Bouchier, Professor Emerita, Dept. of History, McMaster University

Adam Hitchcock, Chemistry & Chemical Biology, McMaster University, FRSC

Dr. James Nugent, Continuing Lecturer, Faculty of Environment, University of Waterloo

Dr. Gail Krantzberg, Professor, Engineering and Public Policy Program, McMaster University

Roger Suffling, Professor, The School of Planning, University of Waterloo

Margot Young, Professor, Allard School of Law, University of British Columbia

Sanda Rodgers, Professor Emerita, Faculty of Law, University of Ottawa

Dr. Lucinda Vandervort, Professor, College of Law, University of Saskatchewan

Dr. Anna Zalik, Environmental & Urban Change, York University

Dr. Molly Wallace, Associate Professor, Department of English, Queen's University

Professor Shubhra Gururani, Associate Professor, Department of Anthropology, York University

Dr. Ian Angus, Professor Emeritus, Humanities, Simon Fraser University

Kyle Conway, Department of Communication, University of Ottawa

Don Wells, Professor Emeritus, Labour Studies & Political Science, McMaster University

Dr. Ruth Frager, Professor Emerita, History Department, McMaster University

Dr. Robert O'Brien, Department of Political Science, McMaster University

Dr. Laura U. Marks, Grant Strate University Professor, School for the Contemporary Arts, Simon Fraser University

Dr. Greg Pyle, Professor, Dept. of Biological Sciences, University of Lethbridge

Dr. Jeff Everett, Professor of Accounting, York University

Susan B. Boyd, Professor Emerita, Allard School of Law, University of British Columbia

Dr. Tony Weis, Professor, Department of Geography and Environment, University of Western Ontario

Peter Vandergeest, Professor Emeritus, Geography, York University

Dr. Serbulent Turan, Instructor, Political Science, University of British Columbia

Brent Ryan Bellamy, Trent University, University of Ontario Institute of Technology

Dr. Stepan Wood, Professor, Canada Research Chair (Tier 1) in Law, Society and Sustainability, Director, Centre for Law and the Environment, Allard School of Law, University of British Columbia

Julia Polyck-O'Neill, York University

Dr. Angela Cameron, Faculty of Law, University of Ottawa

Professor Luin Goldring, Sociology, York University

Dr. Meinhard Doelle, Professor of Law, Schulich School of Law, Associate Dean, Graduate Studies, Dalhousie University

Jordan B. Kinder, Postdoctoral Fellow, Department of Art History & Communication Studies, McGill University

Camille-Mary Sharp, PhD Candidate, Faculty of Information, University of Toronto

Ann-Elise Lewallen, Associate Professor, Pacific & Asian Studies, University of Victoria

Sara Nelson, School of Public Policy and Global Affairs, University of British Columbia

Dr. Sara L Seck, Yogis & Keddy Chair in Human Rights Law, Associate Professor, Schulich School of Law, Dalhousie University

Alex Latta, Associate Professor of Global Studies, Wilfrid Laurier University

Susie O'Brien, Professor, Department of English and Cultural Studies, McMaster University
Hilda Koster, University of St. Michael's College in the University of Toronto
Hilda Fernández, Simon Fraser University
Dr. Gary Warner, Professor Emeritus, French, Arts & Science Program, McMaster University
Dr. Alexandre Da Costa, Associate Professor, University of Alberta
Dr. Dip Kapoor, Professor, Educational Policy Studies, University of Alberta
Arthur Heidebrecht, Professor Emeritus, McMaster University
John Harriss, Professor Emeritus, Simon Fraser University
Dr. Tom Deligiannis, Instructor, Global Studies, Wilfrid Laurier University
Paul Downes, Professor, Dept. of English, University of Toronto
Dr. Runa R. Das, College of Interdisciplinary Studies, Royal Roads University
Tom Langford, Professor Emeritus of Sociology, University of Calgary
Richard Stren, Professor Emeritus of Political Science and Senior Fellow, Global Cities Institute
University of Toronto
Dr. Barbara Murck, Professor, Geography, Geomatics and Environment, University of Toronto
Dr. Stephen Scharper, Director, Trinity Sustainability Initiative, Associate Professor. Department
of Anthropology and School of the Environment, University of Toronto
Professor Kent Moore, Vice-Principal Research, Professor of Physics, University of Toronto
Dr. Arthur Chan, Associate Professor, Chemical Engineering & Applied Chemistry, University of
Toronto
Dr. Penelope Simons, Associate Professor, Gordon F. Henderson Chair in Human Rights, Vice
Dean Research, Faculty of Law, University of Ottawa
Bharat K Punjabi, Munk School of Global Affairs, University of Toronto
Paul Grogan, Professor, Plant and Ecosystem Ecologist, Queen's University
Sarah Rotz, Assistant Professor, Faculty of Environmental and Urban Change, York University
Scott Prudham, Professor, Department of Geography and Planning, School of the Environment
University of Toronto
Kent Peacock, Professor of Philosophy, University of Lethbridge
Dr. Glen Filson, Professor Emeritus, School of Environmental Design & Rural Development,
University of Guelph
Stefan Kipfer, Associate Professor, Faculty of Environmental and Urban Change, York
University
Claire Young, Professor Emerita, Allard School of Law, University of British Columbia
Patricia Ballamingie, Professor, Department of Geography and Environmental Studies, Carleton
University
Dr. Tamara Krawchenko, Assistant Professor, School of Public Administration, Institute for
Integrated Energy Systems, University of Victoria
Dr. Daniel Rück, Assistant Professor, Department of History, Institute of Indigenous Research
and Studies, University of Ottawa
Dr. Willem Langenberg, Adjunct Professor, Department of Earth and Atmospheric Sciences,
University of Alberta
Andreas Hamann, Professor, Department of Renewable Resources, Faculty of Agric. Life &
Environmental Sciences, University of Alberta
Georgina Alonso, PhD Candidate, School of International Development and Global Studies,

University of Ottawa

- Dr. Amelia Clarke, Associate Professor and Associate Dean Research, School of Environment, Enterprise and Development, University of Waterloo
- Dr. Fiona Soper, Department of Biology and School of Environment, McGill University
- Dr. Marguerite Xenopoulos, Professor, Canada Research Chair in Global Change of Freshwater Ecosystems, Department of Biology, Trent University
- Dr. Julia Freeman, Bieler School of Environment, McGill University
- Dr. Ingrid Waldron, Professor and HOPE Chair in Peace and Health, McMaster University
- Dr. Ranjan Datta, Canada Research Chair, Mount Royal University
- Dr. Hamish van der Ave, Department of Wood Science, University of British Columbia
- Dr. Angele Alook, Assistant Professor, School of Gender, Sexuality and Women's Studies, York University
- Dr. Dennis Murray, Canada Research Chair, Department of Biology, Trent University
- Dr. Ryan Phillips, Sessional Lecturer, Department of Politics and Public Administration, X University
- Dr. Sarah Otto, Biodiversity Research Centre, University of British Columbia
- Professor Martha Jackman, Faculty of Law, University of Ottawa
- Marc Lucotte, Professeur titulaire, Département des Sciences de la Terre et de l'atmosphère, GEOTOP et Institut de des sciences de l'environnement, Université du Québec à Montréal
- Douglas A. Campbell, Ph.D., Canada Research Chair in Phytoplankton Ecophysiology, Mount Allison University
- Michael Byers, Professor & Canada Research Chair in Global Politics and International Law, University of British Columbia
- Jeff Dahn, FRSC, Professor of Physics and Atmospheric Science, NSERC/Tesla Canada Industrial Research Chair, Canada Research Chair, Dalhousie University
- Dr. Jonathan Langdon, Canada Research Chair in Sustainability and Social Change Leadership, Development Studies Program, St Francis Xavier University
- Dr. Deborah de Lange, Associate Professor, Environmental Applied Science and Management, Global Management Studies, Ted Rogers School of Management
- Dr. Courtney Mason, Professor, Canada Research Chair, Natural Resource Science, Thompson Rivers University
- Dr. Alana Westwood, Assistant Professor, School for Resource and Environmental Studies, Dalhousie University
- Dr. Adrian Vetta, Professor, Department of Mathematics & Statistics and School of Computer Science, McGill University
- Alicia Sliwinski, Associate Professor and Chair, Global Studies and Social Entrepreneurship, Wilfrid Laurier University
- Shawn M. Chartrand, Assistant Professor, School of Environmental Science, Simon Fraser University
- Stephanie Rutherford, Associate Professor, Trent School of the Environment
- Tom McElroy, Ph.D., FCMS, FRSC, Professor Emeritus and Senior Scholar, York University
- James K. Rowe, Associate Professor, School of Environmental Studies, University of Victoria

Dr. Bree Akesson, Associate Professor and Canada Research Chair (Tier II) in Global Adversity and Wellbeing, Faculty of Social Work, Wilfrid Laurier University

Teresa Kramarz, Associate Professor, Munk School of Global Affairs and Public Policy at the University of Toronto

Dr. Leonard Sklar, Professor Emeritus, Dept. of Geography, Planning and Environment, Concordia University

Edward Xie, Clinical Assistant Professor, Department of Family and Community Medicine, Faculty of Medicine, University of Toronto

Dr. Christopher Lyon, Postdoctoral Researcher, Natural Resource Sciences, McGill University; Visiting Research Fellow, School of Earth and Environment, University of Leeds

Dr. Hugo Beltrami, Professor, Canada Research Chair in Climate Dynamics, St. Francis Xavier University

Dr. Cameron Roberts, Postdoctoral Researcher, Center for Sustainability and the Global Environment, University of Wisconsin Madison; Adjunct instructor, School of Public Policy and Administration, Carleton University

Dr. Tara Ivanochko, Associate Professor of Teaching; Director, Environmental Science; Academic Director, UBC Sustainability initiative, University of British Columbia

Dr. Kevin A. Gould, Associate Professor, Department of Geography, Planning and Environment, Concordia University

Dr. Bruno Tremblay, Department of Atmospheric and Oceanic Sciences, McGill University

Dr. John Holmes, Professor Emeritus, Department of Geography and Planning, Queen's University

Dr. Soni Grant, Killam Postdoctoral Fellow, Department of Sociology and Social Anthropology, Dalhousie University

Amr Addas, Adjunct Professor and Strategic Advisor for Sustainability, John Molson School of Business, Concordia University

Dr. John Hiemstra, Professor of Political Studies, The King's University

Dr. Graham Whitelaw, Associate Professor, School of Environmental Studies, Queen's University

Dr. Gisèle Trudel, Artist and Professor, École des arts visuels et médiatiques, Université du Québec à Montréal; Canada Research Chair in Arts, Ecotechnologies of Practice and Climate Change

Kristen Bos, Assistant Professor, University of Toronto Mississauga

Alberto Toscano, School of Communication, Simon Fraser University

Dr. Louis Gosselin, Professor, Dept. of Biological Sciences, Thompson Rivers University

Dr. David Foord, Assistant Professor, Faculty of Management, University of New Brunswick

Dr. Alexandra Lesnikowski, Assistant Professor, Department of Geography, Planning and Environment, Concordia University

Dr. Craig Johnson, Professor of Political Science & Director, Guelph Institute of Development Studies, University of Guelph

Dr. Dan Weaver, Assistant Professor, Dept. of Physical and Environmental Sciences, University of Toronto Scarborough

Dr. Peter Kulchyski, Professor, Department of Native Studies, University of Manitoba

Dr. Harry Spaling, Professor Emeritus of Environmental Studies & Geography, The King's

University (Edmonton)

Scott Krayenhoff, PhD, Assistant Professor of Atmospheric Science, School of Environmental Sciences, University of Guelph

Dr. Jeff Corntassel, Associate Professor, Indigenous Studies, University of Victoria

Dr. Kalame Fobissie, Adjunct Professor, School of International Development and Global Studies, University of Ottawa

Dr. Nicolas Graham, Department of Sociology, University of Victoria

Dr. Nicole Latulippe, Department of Human Geography, University of Toronto Scarborough

Jody Berland, Professor, Department of Humanities, co-founder YUFA Climate Emergency committee (YCEC), York University

Dr. Heather Castleden, President's Impact Chair in Transformative Governance for Planetary Health, School of Public Administration, University of Victoria

Dr. Nadège Compaoré, Assistant Professor, Political Science, University of Toronto Mississauga

Dr. Mary Louise Adams, Kinesiology and Health Studies, Queen's University

Liat Margolis, Associate Professor, Faculty of Architecture, Landscape and Design, University of Toronto

Dr. Lesley Wood, Associate Professor, Sociology, York University

Dr. Neal Scott, Geography and Planning, Queen's University

Dr. Meg Holden, Professor, Resources and Environmental Management, Simon Fraser University

Dr. Stephen Bocking, Trent School of the Environment, Trent University

Dr. Anders Bjørn, Department of Geography, Planning and Environment, Concordia University

Dr. Dagmar Schwerk, Department of Asian Studies, University of British Columbia

Dr. Yann le Polain de Waroux, Assistant Professor, Institute for the Study of International Development & Department of Geography, McGill University

Dr. Anne de Bortoli, Invited Researcher, CIRAI, Polytechnique Montreal, University of Montreal

Dr. Andrew Woolford, Professor, Sociology & Criminology, University of Manitoba

Dr. Lindsay Galway, Associate Professor and Canada Research Chair in Social-Ecological Health, Department of Health Sciences, Lakehead University

Dr. Heather Cray, School for Resource and Environmental Studies, Dalhousie University

Dr. Ana Maria Peredo, Professor, Telfer Management School, University of Ottawa & School of Environmental Studies, University of Victoria

Dr. Carol Hunsberger, Associate Professor, Department of Geography & Environment, University of Western Ontario

Dr. Andrew Watson, Assistant Professor, Department of History, University of Saskatchewan

Dr. Connie Russell, Professor and Lakehead University Research Chair in Environmental Education, Faculty of Education, Lakehead University

Dr. Caitlin M. Hanrahan, Dept. of Geography & Environment, University of Lethbridge

Sophie Theriault, Professor, Faculty of Law, University of Ottawa

Meghan Brien, Department of English, Queen's University

Dr. Norm O'Neill, Professeur associé, Dépt de géomatique appliquée, Université de Sherbrooke

Dr. Nathan Kowalsky, Associate Professor of Philosophy, St. Joseph's College, University of Alberta

Dr. Richard Kool, Professor, School of Environment and Sustainability, Royal Roads University

Prof. Julianne Stroeve, Center for Earth Observation Science, University of Manitoba

Dr. Larry Hughes, Professor, Department of Electrical and Computer Engineering, and Founding Fellow, MacEachen Institute for Public Policy and Governance, Dalhousie University

Dr. Tarah Wright, Professor, Earth and Environmental Sciences, Dalhousie University

Dr. Brent Sinclair, Professor, Biology, Western University

Dr. Talan Iscan, Professor and Chair, Department of Economics, Dalhousie University

Dr. Veldon Coburn, Assistant Professor, Institute of Indigenous Research and Studies, University of Ottawa

Dr. Ian McKendry, Professor, Department of Geography and Atmospheric Science Program, University of British Columbia

Jana Levison, PhD, PEng, Associate Professor, Water Resources Engineering, School of Engineering, University of Guelph

Naomi Schwartz, Assistant Professor, Department of Geography, University of British Columbia

Tegan Maharaj, Assistant Professor, Faculty of Information, University of Toronto

Dr. Devyani Singh, Post Doctoral Economist Fellow, Environmental Defense Fund

Dr. M. V. Ramana, School of Public Policy and Global Affairs, University of British Columbia

Mollie Holmberg, PhD Candidate, Department of Geography, University of British Columbia

Dr. Sophie L. Van Neste, Associate Professor and Canada Research Chair, Centre Urbanisation Culture Société, INRS

David Patriquin, Dalhousie University (retired)

Dr. Mireille Ghoussoub, Senior Process Engineer, Heirloom Carbon Technologies

Ariel Kroon, Independent scholar

Dr. Alexandra Tavasoli, Postdoctoral Associate, Department of Chemical Engineering, Massachusetts Institute of Technology

Dr. Kai Chan, Professor, Institute for Resources, Environment and Sustainability, University of British Columbia

Martina Paloheimo, PhD. Candidate, Health, Environment, Communities Lab, Department of Geography, Queen's University

Annabel Webb, MA (UBC) MSt (Oxford) PhD student (London) David Suzuki Fellow, Louise Arbour Scholar

Dr. Kris Dubrawski, Civil Engineering and Geography, University of Victoria

Dr. Shannonbrooke Murphy, Human Rights Department, St Thomas University

Dr. Mark Davidson, Associate Professor, Law and Society, Wilfrid Laurier University

Erin Rees, Pathologie et microbiologie, Université de Montréal

Catherine Boulatoff, Department of Economics, Dalhousie University

Dr. Ellen Field, Assistant Professor, Faculty of Education, Lakehead University

Tracy Brennand, Professor & Chair, Department of Geography, Simon Fraser University

Dr. Denis Groleau, professeur retraité et professeur associé, département de génie chimique et de génie biotechnologique, Université de Sherbrooke

Dr. Marco Festa-Bianchet, Chair, Département de biologie, Université de Sherbrooke

Enda Brophy, Associate Professor and Graduate Chair, School of Communication, Labour Studies, Simon Fraser University

Dr. Dylan Clark, Munk School of Global Affairs & Public Policy, University of Toronto

Alain Létourneau, Professeur titulaire, Département de philosophie et d'éthique appliquée, Université de Sherbrooke

Dr. Yannick Huot, Professor, Département de géomatique appliquée, Université de Sherbrooke

Margot W Parkes, MBChB, MAS, PhD, Professor, School of Health Sciences, University of Northern British Columbia

Ian Hamilton, Professor, Department of Chemistry, Wilfrid Laurier University

Cassandra Kuyvenhoven, McMaster University

Dr. Dawn Hooegeven, University Research Associate, Faculty of Health Sciences, Simon Fraser University

Dr. Céline Surette, Professor, Département de chimie et de biochimie, Université de Moncton

Dr. Maya Gislason, Associate Professor, Faculty of Health Sciences, Simon Fraser University

Dr. Carole C. Tranchant, Professeure, Faculté des sciences de la santé et des services communautaires, Université de Moncton

Dr. Michael Brauer, Professor, School of Population and Public Health, The University of British Columbia

Dr. Alison Shaw, Executive Director, ACT - Action on Climate Team, Simon Fraser University

Dr. Fiona A. Miller, Professor, Institute of Health Policy, Management and Evaluation; Director, Centre for Sustainable Health Systems, University of Toronto

Dr. David J. Hardisty, Associate Professor and Chair of Marketing & Behavioural Science, Sauder School of Business, University of British Columbia

Dr. Kirstin C. Appelt, Research Director, Decision Insights for Business & Society (DIBS), Sauder School of Business, University of British Columbia

Dr. Neil Balan, Assistant Professor, Social Justice and Community Studies, Saint Mary's University, K'ijiputuk

Dr. Ben Brisbois, Adjunct Professor, School of Health Sciences, University of Northern British Columbia

Dr. Guillaume Léonard, Associate Professor, School of Rehabilitation, Faculty of Medicine and Health Sciences, Université de Sherbrooke

Peter A. Victor PhD, FRCS, Professor Emeritus, York University

Dr. Barbara Leckie, Professor, Department of English, Carleton University,

Dr. Aline Coutinho, Postdoctoral Fellow, University of Ottawa

Sarah Marquis, Institute of the Environment, PhD Candidate, University of Ottawa

Dr. Lisa Mills, Associate Professor, School of Public Policy and Administration, Carleton University

Dr. Christopher Barrington-Leigh, Associate Professor, Institute for Health and Social Policy, McGill University

Sarah E Sharma, Department of Political Science, Postdoctoral Fellow, University of Toronto, Vice-Chair, WISER Network

Patricia E. (Ellie) Perkins, Professor, Faculty of Environmental and Urban Change, York University

Dr. Jules Blais, Professor, Department of Biology, University of Ottawa

Dr. Chiara Camponeschi, Postdoctoral Research Fellow, Dahdaleh Institute for Global Health Research, York University

Dr. Alexandra Mallett, Associate Professor, Sustainable Energy, School of Public Policy and Administration, Carleton University

Dr. Jean Duquette, Assistant Professor, Department of Mechanical and Aerospace Engineering, Carleton University

Colleen Kaiser, Postdoctoral Fellow, University of Ottawa

Sophie Calmé, Professeure titulaire, Département de biologie, Université de Sherbrooke

Dr. Taco Niet, Assistant Professor of Professional Practice, School of Sustainable Energy Engineering, Simon Fraser University

Dr. Onyx Vanessa Sloan Morgan, Assistant Professor, Department of Community, Culture & Global Studies, University of British Columbia Okanagan

Dr. Elsayed Elbeshbishy, Associate Professor, Ryerson University

Burgess Langshaw Power, PhD Candidate, Balsillie School, University of Waterloo

Maida Hadziosmanovic, PhD Candidate, Concordia University

Dr. Christopher Wellen, Assistant Professor, Ryerson University

Dr. Deondre Smiles, Assistant Professor, Department of Geography, University of Victoria

Peter Andree, Professor, Department of Political Science, Carleton University

Doris Buss, Professor of Law and Legal Studies, Carleton University

Blair Rutherford, Professor and Chair, Sociology and Anthropology, Carleton University

Truzaar Dordi, Doctoral Candidate, University of Waterloo

Dr. Mustafa Koc, Professor, Department of Sociology, Ryerson University

Dr. David Sider, School of the Environment, University of Toronto

Chloe Alexander, Geography, Environment and Geomatics Department, PhD Candidate, University of Guelph

Dr. Laura Minet, Assistant Professor, Civil Engineering, University of Victoria

Daniela Senkl, Assistant Professor, Department of Management, University of Guelph

Dr. Bailey Gerrits, Mila Mulrone Research Chair in Women, Policy and Governance Leadership, St. Francis Xavier University

Donny Seto, Lecturer, Geography, Planning and Environment, Concordia University

Greg Albo, Department of Politics, York University

Dr. Jose Etcheverry, Professor, York University

Dr. Sébastien Brodeur-Girard, École d'études autochtones, Université du Québec en Abitibi-Témiscamingue

Dr. Cristina Rojas, Distinguished Research Professor, Carleton University

Dr. Tony R. Walker, Associate Professor, School for Resource and Environmental Studies, Dalhousie University

Dr. Roxane Maranger, CRC Tier Aquatic Ecosystem Science and Sustainability, Département des sciences biologiques, Université de Montréal

William David Lubitz, Ph.D., P.Eng., Associate Professor, School of Engineering, University of Guelph

Erica Pensini, PhD, P. Eng, Associate Professor, School of Engineering, University of Guelph

Abdallah Elsayed, Ph.D., P.Eng., Assistant Professor, School of Engineering, University of Guelph

Kate Sherren, PhD. Professor, School for Resource and Environmental Studies, Dalhousie University

Dr. Joel Bruneau, Associate Professor and Head, Department of Economics, University of Saskatchewan

Neil Tandon, Assistant Professor, Department of Earth and Space Science and Engineering, York University

Peter Sale, Distinguished University Professor (Emeritus), University of Windsor

Duane Froese, Professor, Department of Earth and Atmospheric Sciences, University of Alberta

Erick Lachapelle, Associate Professor, Université de Montréal

Lorelei Hanson, Associate Professor, Environmental Studies, Athabasca University

Dr. Craig A. Coburn, Professor and Chair, Department of Geography and Environment, University of Lethbridge

Alan Diduck, Professor, Department Chair, Environmental Studies & Sciences, University of Winnipeg

Dr. José Carlos Marques, Telfer School of Management, University of Ottawa

Professor Nina-Marie Lister, Graduate Director, School of Urban Planning, Ryerson University; Visiting Professor, Harvard University, Graduate School of Design

Danielle Dinovelli-Lang, Assistant Professor, Sociology and Anthropology, Carleton University

Dr. Christopher Powell, Associate Professor, Department of Sociology, Ryerson University

Dr. Sarah Marie Wiebe, Assistant Professor, School of Public Administration, University of Victoria