

Brief to the House of Commons Standing Committee on Natural Resources
Parliament of Canada

Study of a Cap on Greenhouse Gas Emissions from the Oil and Gas Sector

By

Professor Laurie E. Adkin, Ph.D.
Department of Political Science
University of Alberta
ladkin@ualberta.ca

Attn: Geneviève Desjardins, Committee Clerk
RNNR@parl.gc.ca

March 24, 2022

I am a political economist in the Department of Political Science at the University of Alberta, which is located in Amiskwacî wâskahikan on Treaty Six land that has always been used, travelled, and inhabited by Cree, Tsuut'ina, Niitsitapi/Blackfoot, Métis, Nakota Sioux, Haudenosaunee/Iroquois, Dene Suliné, Anishinaabe/Ojibway/Saulteaux, and Inuk/Inuit peoples. My areas of specialisation include the political economy of environmental policy, ecological economics, and the democratic conditions for a just transition to a post-carbon economy.*

This committee has now heard testimony from more than 30 witnesses on the question of whether or not, and how, the Government of Canada should implement a cap on the greenhouse emissions from the oil and gas sector as a key pillar of its response to the global climate crisis. As the testimony and questioning that have taken place so far in this committee have shown, the emissions cap question cannot be isolated from a much broader range of questions about how our governments should respond to the climate crisis.

As one of the last witnesses from whom you will hear in your deliberations, I have had the opportunity to review the preceding testimony and briefs for your studies of both the Emissions Reduction Fund and the Greenhouse Gas Emissions Cap for the Oil and Gas Sector. I am, therefore, positioned to identify the ways in which the assumptions and claims of the previous witnesses are either in agreement or significantly at odds, and to pinpoint critical decisions for the committee. In so doing, I draw upon my four decades of experience as an analyst of Canadian environmental and climate policy.

Which scenario for global fossil fuel production is consistent with not exceeding the global carbon budget?

Many of the civil society organizations and academics that have addressed you have urged you to act in accordance with the knowledge produced by the IPCC.¹ This is the best science available about the known and probable consequences of successive degrees of global warming. From these reports, we know that by far the greatest cause of global warming is the combustion of fossil fuels, and that each increment of additional warming entails greater destabilization of the global climate and ecosystems resulting in threats to food and water supply, catastrophic biodiversity loss, rising numbers of climate refugees, and growing strains on the fiscal capacities of states and on democratic institutions. These and other consequences of global warming are, of course, inter-determining. The biofeedback effects of temperature rise cannot be fully predicted or controlled; they greatly magnify the risks of global warming.² Beyond 2 C, the conditions for human life on this planet are very grim indeed.³ The IPCC is ringing all the alarm bells at hand. Indigenous elders are communicating similar messages based on their observations over time of changes to the land, water, the well-being and behaviours of other species, the seasons, and even the rising and setting of the sun.⁴

* My webpage is found [here](#), and a CV may be accessed from this site.

In May 2021, the International Energy Agency admitted that *not surpassing the 1.5 C threshold of global warming requires halting and reversing global oil production now*.⁵ In its October 2021 *World Energy Outlook* report, the IEA set out multiple scenarios for future demand for fossil fuels, and modelled the climate implications in each case.⁶ In its “net zero emissions” by 2050 scenario (NZE), global oil consumption must fall to no more than 25 million barrels per day (mb/d) from its current level of about 90 mb/d, with almost all of this being used for petrochemicals and other non-substitutable (and non-road-transportation) uses (220).⁷ Notably, the IEA concludes that, in NZE, “the fall in oil demand and prices does not justify investment in new fields after 2021” (218). Global methane emissions will need to be cut by 77 per cent by 2030 (38).⁸

Yet the spokespersons for the corporations and associations invested in oil and gas extraction prefer that climate policy reflect the “stated policies” scenario (STEPS) set out by the International Energy Agency in *WEO 2021*. This scenario predicts future oil demand based on an analysis of governments’ existing “energy data, policy announcements, investment trends, and technology developments” (27). Alarmingly, in the STEPS scenario, global median surface temperature is predicted to rise beyond 2.5 C, and there is a chance that the temperature increase will exceed 3.5 C (34-35). The IEA states that: “In the STEPS, around 2050, there would be a 100% increase in the frequency of extreme heat events compared to today and these would be around 120% more intense; there would also be a 40% increase in ecological droughts that would be around 100% more intense” (35). In the NZE, on the other hand, the increase in frequency of extreme heat events would be lower at around 45% and ecological droughts would be less than 20% more frequent” (Ibid.).

The IEA *WEO 2021* scenario favoured by oil and gas industry executives, in which demand for oil does not begin to taper off until the 2030s, and natural gas demand continues to rise to 2050 (28) is not consistent with preventing a rise in global average temperature beyond 1.5 C.⁹ *This is a fundamental conflict, and you must decide how willing you are to put at great risk the conditions for human life on this planet.*

How can the needed reduction of GHG emissions from the oil and gas sector be achieved? (What is the role of a progressive cap-and-trade system?)

The current federal government has said that Canada’s fair share of global GHG emission reductions amounts to 40 to 45 per cent by 2030 (over 2005 as the base year) heading toward net zero by 2050. I noted that none of the witnesses explicitly rejected these targets, although some analysts argue for greater reductions in a shorter time frame.¹⁰ Nor was there disagreement among your witnesses that the largest single source of GHG emissions in Canada is the fossil fuel production sector, followed by the closely linked transportation sector. In 2015, 72 per cent of our GHG emissions came from the combustion of fossil fuels.¹¹

However, the witnesses disagreed about how GHG emissions from the oil and gas sector should be reduced, and on what timeline. The representatives of the oil and gas industry do not want a cap on absolute emissions or any other policy that limits growth in the extraction and export of oil and gas (Tarvydas/TC Energy, McMillan/CAPP, Scholz/CAEC; Beugin/CICC). Moreover, they want the option to comply with emission intensity reduction targets by purchasing offsets in global markets (as stated by Pierce/ Shell Canada and Goodman/E&PA). And they want technologies like carbon capture and sequestration (CCS) to be largely publicly financed. Claims regarding the GHG-reducing potential of CCS/CCUS and carbon dioxide removal (CDR) underpin their argument that the extraction and combustion of fossil fuels may be prolonged for decades to come without risking catastrophic degrees of global warming. No prudent analysis of the risks makes this assumption, because to do so is to gamble a planet that can support its current human population on technological capacities that do not now exist and may not be available when they are expected to play a critical role.¹² (I discuss the CCS question further below.)

The modelling work of l'Institut de l'Énergie Trottier (IET) shows that, “from a cost-optimal perspective, oil and gas, industry and electricity production should bear the largest share of emissions reduction in the coming years.”¹³ In his presentation to the committee, M. Langlois-Bertrand explained why the “most substantial reductions to achieve the 2030 target should come from the oil and gas sector . . . [W]e estimate the need at more than 60 per cent of emissions reduction for the sector compared with today's levels, and that's assuming that all other sectors are perfectly successful in their own reductions.”¹⁴ It is difficult to see how the oil and gas sector can reduce its GHG emissions by 60 per cent by 2030 without a contraction in production.¹⁵ And that is, indeed, what *should* be happening if our climate/transition policies are effective in reducing demand for fossil fuels. That is, we should be shrinking fossil fuel use for heating, electricity, and transportation as a result of energy efficiency initiatives, growing reliance on renewable energies, expanded public transit systems, ecological urban design and land use, more local food production, regenerative agricultural practices, and other elements of a comprehensive climate/transition plan.

The [recent Tyndall Institute report](#) co-authored by one of your witnesses, Dr. Kevin Anderson, concluded that, for the world to have even a 50 per cent chance of not exceeding 1.5 C of warming—and to do so equitably-- *wealthy nations must phase out all oil and gas production by 2034*, while the poorest nations may continue to rely on these energy sources until 2050.¹⁶ There must be no new hydrocarbon extraction projects *anywhere*. These conclusions tell us that there is no question of continuing current levels of Canadian oil and gas extraction well into the future—which is the goal of industry representatives. We must put a multi-faceted transition plan in place now.

Perhaps one reason not to call for a phase-out of *oil and gas production*, in the Canadian context, is that natural resources are a provincial jurisdiction, and such a policy could provoke constitutional challenges. A cap on GHG emissions from this sector, on the other hand, is well within federal jurisdiction, as explained by Mr. Martin Olszynski. It is evident that the policies regulating oil and gas sector emissions in the major producing provinces are not up to the task, as the sector's emissions have continued to rise.¹⁷

CAN-RAC and others have proposed setting the first cap in 2023 at the 2019 level of the sector's emissions (191 mt)¹⁸ and aiming for a reduction to 61-to-64 mt in 2030. However, the Tyndall report's findings, i.e., that Canada must reduce fossil fuel production by 74 per cent by 2030 and completely by 2034, suggest that the cap should be lowered to 50 mt in 2030 and zero in 2034 (not 2050).

Those numbers will cause oil industry executives to blanch, but remember that in 2005, GHG emissions from oil and gas extraction (63 mt) and petroleum refining (20 mt) totalled 83 mt, and fugitive emissions from coal mining, oil, and natural gas were estimated at 61 mt. The near doubling of emissions from oil and gas extraction in only 14 years (to 105 mt in 2019) was linked to exports (especially growing exports of heavy crude from the oil sands to the USA). In a decarbonizing world, we can expect demand for Alberta's heavy crude to fall.¹⁹ Technologies exist to capture flared and vented methane. And the ARC Energy Research Institute estimates that the Canadian oil and gas industry will amass \$224.4 billion in revenue in 2022.²⁰ So, the caps suggested in the preceding paragraph might be achieved, in part, through a contraction of unconventional oil and gas extraction and exports, while resource rents could be used by governments to invest in a just green transition for workers and Indigenous communities in these regions.

Implementing a cap-and-trade system at this juncture is not ideal, as it could take years to tweak the design and we do not have years to get the system working effectively. But since this is where we are now, we should learn from the flaws of systems that have been implemented elsewhere (e.g., the European Union's ETS, California's cap-and-trade system, the emissions trading system in Australia, and the TIER system in Alberta).²¹

- The initial schedule for progressively lower caps should be set in 2022 and it should be made clear that these will be "hard" caps covering all scope 1 and 2 emissions in the sector (fugitive emissions, venting, extraction, upgrading, refining). Olaf Merk of the International Transport Forum (OECD) suggested that Canada consider also including in the emissions trading system the marine shipping companies that transport coal, oil, and LNG from Canadian ports, i.e., that their emissions be 'counted.'
- The caps should apply to absolute emissions. The TIER system (and its federal counterpart, the OBPS), which set standards for the carbon intensity of a unit of product (e.g., barrel of

oil) do not guarantee a reduction in absolute emissions from the regulated sector, and we cannot risk this plan failing.²²

- Make this a “hard cap” system without options to purchase emission credits from outside the regulated sector, or to purchase offsets. The most used form of compliance in Alberta’s TIER has been payment into the CCEM Fund, which is then recycled to the large emitters in the form of R&D grants.²³ The price per ton of exceeded emissions is too low to incentivise investment in pollution abatement. Large emitters would like to be able to purchase carbon offsets on the global market, but these have proven to be mostly a scam. Place a time limit on the banking of emission reduction credits.
- Exemptions to compliance must be restricted (these have been used to allow facilities that would not be economically viable if they invested in pollution abatement to continue operating or for other reasons).
- Best available technologies for detecting GHG emissions from all sources in the sector need to be mandated.
- If the federal government decides to direct revenue from the auctioning of permits or the payment of carbon levies to a dedicated proceeds fund, a broad spectrum of civil society should be consulted about the criteria / priorities for the disbursement of grants from the fund. The solutions to the climate crisis are not merely technological; nor do they lie entirely in the private sector. Why shouldn’t such a fund be dedicated to just transition initiatives, for example?

Provincial governments will have to decide whether or not to retain their own “cap and trade” systems. They might agree to replace their systems (insofar as these include oil and gas sector emitters) with the federal one, but bargain for a portion of the revenue generated by permit auctioning or levies. I would prefer to see the revenue from the federal ETS directed to an independent public agency mandated to invest in the new green economy according to the principles of pan-Canadian solidarity and leaving no one behind.

The problem I see with taking the advice of several of the economists who have addressed the committee, and who have argued that the existing output, or performance-standards-based system adopted federally merely needs adjustments to bring down GHG emissions from the oil and gas sector is, first, that the federal OBPS does not cover most of the big emitters in the oil and gas sector, which are located in Alberta.²⁴ Mr. Rivers suggested that the federal government would have to “increase its efforts” to get the provincial output-based systems to similarly strengthen their requirements for emissions reductions, but we must anticipate that the governments in the oil-producing regions will be unwilling to do this, and that crucial time will be lost as emissions from the oil and gas sector continue to undermine the achievement of federal climate targets.²⁵ I’m afraid that we are back to needing a sector-specific cap as well as a federally-imposed cap that brings down absolute emissions (and rapidly).²⁶

In opposing a more rigorous and ambitious system for reducing emissions, executives from the oil and gas corporations, their industry associations, and various think tanks argue that such a system will drive out investment, leading to loss of employment as well as government revenue from royalties and taxes. They argue that such a system will cause carbon leakage and therefore punish the Canadian economy while not helping to reduce global GHG levels. We have also heard the argument that a cap on oil and gas emissions will generate push-back from the oil-producing provinces whose politicians will frame the cap as a regionally discriminatory policy.

First, it is indeed likely that an effective cap on GHG emissions from this sector will nix plans for future increases in extraction and exports. It is also likely that a progressively lowered cap—without escape exits—will cause a contraction of production over time. *The employment and revenue effects of these outcomes, however, are another matter altogether.* These depend on other policies that provincial and federal governments will implement in conjunction with the caps on GHG emissions from the oil and gas sector. All the evidence points to the potential of investment in ‘green sectors’ to generate far more jobs than the oil and gas industry currently produces or will make possible in the future. I agree with Gil McGowan of the Alberta Federation of Labour, among many others, that it is in the interests of Canadian citizens that their governments engage now in planning for, and investing in, a post-carbon transition, rather than leaving our income security and quality of life to the mercy of investment decisions driven by the convulsions of global markets for fossil fuels.

Second, divestment is happening independent of carbon pricing policies. The departure of multinational energy companies from the oil sands in recent years has been motivated by their strategic calculations of medium to long-term market trends and climate-related risks. The trends to which these corporations are responding are not within the control of Canadian governments, but it is within our control to choose how we respond to them.

Third, the carbon leakage argument has been used for too long to deter effective government regulation of GHGs. Not only is there no substantial empirical evidence that carbon leakage is a significant outcome of carbon pricing,²⁷ but—as Sara Hastings-Simon stated in her testimony—given the carbon intensity of an average barrel of crude oil from the oil sands, the substitution of oil produced elsewhere for supply from Canada would not worsen global GHG emissions.²⁸

Can greenhouse gas emissions be decoupled from production levels in the oil and gas sector?

You have heard conflicting testimony here. The oil and gas industry representatives argue that such a decoupling is possible, relying predominantly on the promise of carbon capture and sequestration (CCS) technologies. Technological “solutions” that are supposed to make endless economic growth and consumption of Earth’s resources compatible with the sustainability of our life-systems have been the stock response of large business associations to the climate crisis

since the 1990s. CCS has been the central pillar of “climate policy” in Alberta since at least 2002 and has been supported with massive provincial and federal grants.²⁹ The large emitters have lobbied hard for a \$75 million federal tax credit for corporate investment in CCS/CCUS, and by all indications are likely to get their wish in the coming federal budget.

I do not have space here to review what has been written about the feasibility of implementing CCS on the scale necessary to achieve its promises (within the very short window open to us), or about the cost (and opportunity costs) of doing so. Nor—as M. Detuncq (Polytechnique de Montreal) told the committee, do we know much about the environmental risks of CCS. Suffice it to say that this is an extraordinarily expensive and high-risk approach to the goal of not overshooting the global carbon budget. Most experts agree that the costs are unjustifiable if the financing is to come from public revenue. Lower cost methods of achieving more certain and more significant reductions are available within the next decade, and that is where public revenue should be invested.

One might ask why, if CCS/CCUS is such a promising technology, will the industry not invest in its development itself (in the absence of tax credits and grants)? The answer is that there is no guarantee that they will recoup the costs of such investment before their operations become unprofitable. (The Canada Chair of Shell Oil, Susannah Pierce, confirmed this in her testimony on February 9.) These corporations have likewise not committed to clean up existing environmental liabilities, estimated to be as much as \$260 billion in Alberta alone. They have, however, allocated profits to increasing dividends and buying back shares.³⁰

Looked at from another perspective, only a small portion of the oil and gas produced in Canada can (theoretically) be decoupled from emissions using CCS or other technologies. This is because four fifths of the emissions occur downstream (when the oil and gas are combusted). (Mme. Brouillette of the Climate Action Network said that Canada exports 954 mt of CO₂e emissions per year.)

Are economies based on infinite growth in material through-put ecologically sustainable?

The core premise of ecological economics is that endless growth in the consumption of energy and other resources is not ecologically sustainable.³¹ Merely substituting electricity or green hydrogen for fossil fuels while maintaining production and consumption “as usual” in the Global North will not solve all our ecological and social crises. Right now, mining companies want to extract minerals (chromium, nickel, copper, platinum, palladium) from the peat bogs of the Hudson Bay Lowlands, touting this as a contribution to reducing GHG emissions because some of these minerals will be used in the batteries of electric vehicles. They are backed by the Doug Ford government, which calls this a “critical minerals” strategy. But the peatlands of Ontario sequester an estimated 30 billion tonnes of carbon.³² The Indigenous peoples who live in this

region are told that further sacrifice of their land is necessary for the good of the planet. How many electric vehicles does the world need? How much electricity will it take to keep them fuelled, and what are the ecological and social costs of producing it?

As human population grows, along with demand for food and water, and the now baked-in effects of the climate crisis cause frequent crises in food production and water supply, countries in the Global North, like Canada, will need to *decrease* our total energy demand and redistribute resources in a more egalitarian fashion. An emissions cap on oil and gas production can accelerate a transition to an economy fuelled by renewable energies, but overall demand for energy and the goods it produces must also decline. What this “degrowth” looks like will depend on whether it is planned, democratically and collectively, or thrust upon us by the chaos of markets and climate breakdown.

How is an emissions cap part of a larger package of climate justice policies?

Many witnesses told the committee that an emissions cap is not a “stand alone” policy tool. It will not obtain public support, and its consequences will not be politically sustainable in the absence of other elements of a comprehensive plan for green transition. Think, for a moment, of what will be necessary to sustain active support for energy transition in Alberta.

In addition to the quasi-market-based approaches favoured by neoclassical economists (carbon taxes, cap-and-trade systems) and regulatory tools (e.g., clean fuel standards, banning of pollutants), governments will have to turn to approaches to managing the climate crisis that have been marginalized and stigmatized by forty years of neoliberal dogma.

A number of witnesses spoke to the need for *large-scale government investment* in job-creating green sectors. But this need not take the form only of subsidies to private investors. Governments should not rule out, for example, *public ownership* of the renewable energy utilities or transportation systems that must be rapidly expanded. Is it realistic to believe that the scaling up of renewable energies, building retrofitting, or energy efficiency programs will happen as quickly as we need (for both ecological and employment reasons) if we leave it to private investors? And why shouldn't Canadians retain ownership and control over the long-term revenues that come from the new sectors of the economy? We need these revenues to finance the transition.

Government-led planning is essential to radically and rapidly decarbonizing our economies and coping with the now unavoidable consequences of global warming. As the Ministers of Natural Resources and Environment and Climate Change focus on designing a system to cap the emissions of the oil and gas sector, the government should also be consulting Canadians about the design of a pan-Canadian “just transition” deliberation process that includes provincial,

territorial, and Indigenous governments as well as representative citizen assemblies. This could become a permanent deliberative institution charged with educating citizens, building consensus, and advising governments. We need to get all governments to the table to agree on the principles for allocating not only responsibilities for GHG emission reductions, but also the revenue and resources to allow this to happen in a way that does not worsen income insecurity for any group. We need to develop a common, hopeful vision of the future that we want our children to inherit.

Notes

¹ Working Group I, Intergovernmental Panel on Climate Change, *Climate Change 2021: The Physical Science Basis*, Contribution to the Sixth Assessment Report (October 2021); Working Group II, Intergovernmental Panel on Climate Change, “[Summary for Policymakers](#),” *Climate Change 2022: Impacts, Adaptation and Vulnerability*, Contribution to the Sixth Assessment Report (Finalized 27 February 2022).

² For a very recent example, see F. Harvey, “[Heatwaves at both of Earth’s poles alarm climate scientists](#),” *The Guardian* (20 March 2022).

³ W. Steffen, J. Rockström, K. Richardson, et al., “Trajectories of the Earth System in the Anthropocene,” *Proceedings of the National Academy of Sciences of the United States of America* [PNAS] vol. 115, no. 33 (14 August 2018): 8252-8259; J. Rockström, W. Steffen, K. Noone, Å Persson, F. S. Chapin, et al., “A safe operating space for humanity,” *Nature* 461 (2009): 472-475; D. Wallace-Wells, “[The Uninhabitable Earth](#)” (annotated), *New York Magazine* (10/14 July 2017).

⁴ G. Dixon, “New documentary recounts bizarre climate changes seen by Inuit elders,” *The Globe and Mail* (19 October 2010), <https://www.theglobeandmail.com/arts/film/new-documentary-recounts-bizarre-climate-changes-seen-by-inuit-elders/article1215305/>

⁵ International Energy Agency, *Net-Zero by 2050: A Roadmap for the Global Energy Sector* (IEA: Paris, 18 May 2021).

⁶ International Energy Agency, *World Energy Outlook 2021* (IEA: Paris, 12 October 2021).

⁷ Note that in the IEA’s NZE scenario, there is a heavy reliance on technologies like hydrogen-based fuels and CCUS to achieve GHG emission reductions from 2030 to 2050. Removing those assumptions means a much more radical reduction in natural gas consumption (73).

⁸ The Pembina Institute argues that Canada can cut methane emissions by almost 90 per cent by 2030 at a cost of less than \$25 per tonne. (Testimony to the RNNR Committee on February 28)

⁹ This “take it slow” approach (which they labelled “aggressive decarbonization”) was also advocated by the oil and gas industry in [a report](#) written by the law firm, McCarthy-Tétrault, published by the Public Policy Forum on 15 March 2022.

¹⁰ Climate Action Tracker argues that Canada’s 2030 target should be at least a 54 per cent reduction below 2005 level. CAT’s analysis shows that Canada’s 2030 reduction promises are consistent with 2 C of warming rather than the 1.5 C limit endorsed by parties to the Paris CoP in 2015. CAT states that Canada is “not meeting its fair-share contributions.”

<https://climateactiontracker.org/countries/canada/>

¹¹ Projet Trotter pour l’Avenir Energetique, Canadian Academy of Engineering, and David Suzuki Foundation, *Canada’s Challenge & Opportunity: Transformations for major reductions in GHG emissions* (April 2016), 271.

¹² See the overview of direct air capture as a solution to global warming in A. Malm and W. Carton, “Seize the means of carbon removal: the political economy of direct air capture,” *Historical Materialism* (2021): 1-46. Using Global CCS Institute data, Calverley and Anderson (2022, 24) calculate that total capture of CO₂ emissions from existing CCS facilities (that is actually stored) amounted to a miniscule 0.02% of energy-related CO₂ emitted in 2021. If Global CCS Institute projections for 2030 CCS capacity are realized, *this figure will rise to only 0.1% of current emissions*. Note that bioenergy with carbon capture and storage (BECCS) has been rejected by most experts on ecological and social grounds.

¹³ S. Langlois-Bertrand, K. Vaillancourt, L. Beaumier, M. Pied, O. Bahn, N. Mousseau, *Canadian Energy Outlook 2021-- Horizon 2060*, with the contribution of G. Baggio, M. Joanis, T. Stringer (Montreal: Institut de l’Energie Trottier and e3c Hub, 2021), 4.

¹⁴ Simon Langlois-Bertrand and Normand Mousseau of the Institut de l’Energie Trottier have concluded that even a 25 per cent reduction of GHG emissions by 2030 would require fossil industry emission reductions of 30 per cent by 2026 and 60 per cent by 2030. Webinar 2 March 2022, <https://iet.polymtl.ca/en/publication-en/canadas-2030-emissions-reduction-plan-iet-proposal/>

¹⁵ Climate Action Network supports a cap of 64 mt for the oil and gas sector by 2030, down from its current 191 mt.

¹⁶ D. Calverley and K. Anderson, K. *Phaseout Pathways for Fossil Fuel Production Within Paris-compliant Carbon Budgets*. Tyndall Centre for Climate Change Research. Report commissioned by the International Institute for Sustainable Development (11 March 2022).

¹⁷ The federal Output-Based Pricing System (OBPS) appears to be equally ineffective. Its standards were watered down in the wake of industry lobbying, and ECCC estimates that the OBPS will secure only 22 mt in GHG emission reductions between 2019-2030, or 7.5 per cent of the 296 mt that Canada needs to shed during this period. See Government of Canada, “Output-Based Pricing System Regulations: SOR/2019-266,” *Canada Gazette*, Part II, Volume 135, Number 4. Registration SOR/2019-266 (28 June 2019). <https://gazette.gc.ca/rp-pr/p2/2019/2019-07-10/html/sor-dors266-eng.html>

¹⁸ Environment and Climate Change Canada, *National Inventory Report 1990-2019: Greenhouse Gas Sources and Sinks in Canada*. Canada’s submission to the United Nations Framework Convention on Climate Change, Part 1 (2021), 11.

¹⁹ A. Cosbey, D. Sawyer, and S. Stiebert, *In Search of Prosperity: The role of oil in the future of Alberta and Canada*. IISD Report (May 2021). <https://www.iisd.org/system/files/2021-05/search-prosperity-oil-alberta-canada.pdf>

²⁰ ARC Energy Research Institute, ARC Energy Charts (Canadian Industry Metrics) (21 March 2022), <https://www.arcenergyinstitute.com/wp-content/uploads/220321-Energy-Charts.pdf>.

²¹ The cases of California, Australia, and the European Trading System offer examples of such problems. See, e.g., J. Valdez, “[Is California’s cap-and-trade program hurting the environment more than helping it?](#)” *Los Angeles Times* (22 March 2022); J. Cart, “Experts—once again—tell Senate panel that [California’s key climate change strategy is flawed](#),” *Cal Matters* (23 February 2022); A. Morton, “[Australia’s carbon credit scheme ‘largely a sham,’ says whistleblower](#),” *The Guardian* (23 March 2022); I. Abdel-Ati, “[The EU Emissions Trading System Seeking to Improve](#),” *Climate Scorecard* (11 March 2020); S. Borghesi and M. Montini, “[The best \(and worst\) of GHG emission trading systems: Comparing the EU ETS with its followers](#),” *Frontiers in Energy Research* (29 July 2016).

²² L’Institut de l’Energie Trottier is one of many sources to conclude that existing measures at the federal and provincial levels are insufficient to prevent the growth of GHG emissions. The Executive Summary to the Institute’s 2021 *Canadian Energy Outlook* report states that the fuel charge, rising to \$170 per tonne in 2023, will bring about no more than 13 per cent of the reductions needed by that date. Taking this together with the Clean Fuel Standard, federal climate policy will reduce emissions only by 16 per cent over 2005 by 2030 (instead of the targeted 40 to 45%). See S. Langlois-Bertrand et al. (2021).

²³ L. Adkin, “Technology innovation as a response to climate change: The case of the Climate Change Emissions Management Corporation of Alberta.” *Review of Policy Research* vol. 36, no. 5 (2019).

²⁴ The OBPS has been applied to New Brunswick, Ontario, Manitoba, and Saskatchewan, but ceased to apply to New Brunswick in January 2021 and to Ontario in January 2022. It was voluntarily adopted by PEI, Yukon, and Nunavut. Nova Scotia has a cap-and-trade system that applies to industrial facilities and Newfoundland and Labrador has a performance-based system for industrial facilities. Alberta has the successors to the Specified Gas Emitters Regulation (currently, the TIER). According to the Department of Environment and Climate Change, in 2019, the OBPS covered about 10 per cent of the country’s industrial emissions coming from 122 facilities. See Government of Canada, *Canada Gazette*, op cit.

²⁵ Could the federal government mandate that all provincial systems adjust their performance standards and carbon prices to conform to a federal schedule for reductions of emissions in the oil and gas sector? Would that be simpler, administratively, than bringing all oil and gas sector emitters under a federal cap and trade system? Would it be massively difficult to figure out what that means for each sub-national system? Would the oil and gas industry find such an approach simpler to negotiate? Would this result in emission reductions happening faster than the alternative, i.e., a unitary federal system? Perhaps this possibility is being considered by the NRCan and ECCC departments.

²⁶ There may be another argument for a sector-specific federal emissions cap that has not yet been discussed. That is, a cap covering *all* industrial emissions would involve a tangle with the government of Quebec over combining the federal program with Quebec’s cap-and-trade system (which is, moreover, linked to California’s). There will no doubt be some issues to work out as it is, between the parallel implementation of a federal cap on oil and gas sector emissions and Quebec’s regulation of emissions from large industrial emitters and fuel distributors.

²⁷ L. Adkin, “[Crossroads in Alberta: Climate Capitalism or Ecological Democracy.](#)” *Socialist Studies* vol. 12, no. 1 (Spring 2017), 2-31.

²⁸ B. Israel, “[The real GHG trend: Oilsands among the most carbon intensive crudes in North America](#)” (Calgary: Pembina Institute, 4 October 2017).

²⁹ L. Adkin and B. J. Stares, “Turning up the Heat: Hegemonic Politics in a Petro-State,” in L. E. Adkin, ed. *First World Petro-Politics: The Political Ecology and Governance of Alberta, 190-240* (Toronto: University of Toronto Press, 2016); L. Adkin 2019, op cit.

³⁰ A. Barnea, “Record profits in oil and gas should be used to fight climate change,” *Toronto Star* (12 March 2022), <https://www.thestar.com/business/opinion/2022/03/12/record-profits-in-oil-and-gas-should-be-used-to-fight-climate-change.html>

³¹ A. Y. Hoekstra and T. O. Wiedmann, “Humanity’s unsustainable environmental footprint,” *Science* vol. 344, issue 6188 (June 2014): pp. 1114-1117.

³² CBC Radio, What on Earth?, “Mining Ontario’s Ring of Fire could help build green energy—but also damage vital peatlands,” CBC Newsletters (17 March 2022),

https://subscriptions.cbc.ca/newsletter_static/messages/whatonearth/2022-03-17/?cmp=subscription-centre_whatonearth_vib-link; M. Cimellaro, “Yehewin Aski’: The Breathing Lands protecting Canada from climate breakdown,” *Canada’s National Observer* (23 December 2021), <https://www.nationalobserver.com/2021/12/23/latest-news/yehewin-aski-breathing-lands-protecting-canada-climate-breakdown>