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The Dog that Doesn't Bark: Federal Regulation of Industrial Air Pollution in Canada

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1. Introduction

In a well-known Sherlock Holmes story, Holmes solved a murder mystery by pointing to the "curious incident of the dog in the night-time". "The dog did nothing in the night-time", countered the Scotland Yard detective on the case. "That was the curious incident" replied Holmes.

Health Canada estimates that air pollution accounts for 15,300 premature deaths annually in Canada. All the key air pollutants are found on Canada's list of toxic substances, giving Environment and Climate Change Canada (ECCC) full authority to regulate emissions. And yet there are only a handful of federal regulations addressing air pollution from industrial/stationary sources.

This case study[1] addresses the question – why doesn't the dog bark?

2. Why does air pollution matter?

A 2021 Health Canada (HC) report notes that "Air pollution is recognized globally as a major contributor to the development of disease and premature death and represents the largest environmental risk factor to human health". The report's analysis indicates that "despite the relatively low levels of air pollutants in Canada compared to other regions of the world, air pollution continues to impact population health." Specifically, Health Canada notes that 15,300 premature deaths per year in Canada can be attributed to "above-background" air pollution.[2,3]

Indeed, while air quality has been improving in Canada and the US, a number of studies point to the conclusion that there may be health benefits from continual air quality improvement, even in areas with relatively low concentrations of air pollution.[4] In particular, exposure to fine particulate matter ($PM_{2.5}$) at concentrations below US national air quality standards may still lead to increased mortality.

There has also been some scientific literature linking air pollution to higher death rates from COVID-19. For example, an April 2020 study by a group of researchers at Harvard found

[1] This case study is intended to be used as a teaching tool. As such it necessarily simplifies some of the scientific complexities of air pollution.
[2] See Health Canada *Health Impacts of Air Pollution in Canada*, 2021 Report, pp4-6.
[3] Above-background air pollution is comprised mostly of emissions from human activity but also includes emissions from natural events such as forest fires.
[4] For example, a January 2020 study in The Lancet Planetary Health journal, and a June 2017 article in the New England Journal of Medicine.

that "a small increase in long-term exposure to $PM_{2.5}$ leads to a large increase in the COVID-19 death rate". Similarly, a December 2020 Oxford study found that "air pollution is an important cofactor increasing the risk of mortality from COVID-19". However, it should be noted that a report by the European Environment Agency in November 2020 indicated that there are some "significant limitations" to the early studies exploring links between air pollution and COVID-19, and stated that the findings of these studies "are highly uncertain and need to be interpreted with care".[5]

There is also some evidence that exposure to air pollution may be linked to economic inequality. Studies have found that, in North America, individuals and communities of lower socioeconomic status are exposed to somewhat higher concentrations of air pollution.[6]

3. What is the scientific and policy context?

Climate change and air pollution are both caused by emissions to air, and often from the same activities -- fossil fuel combustion. However, while climate change is a global issue – greenhouse gas (GHG) emissions have the same impact regardless of where they are emitted -- air pollutant emissions often have their greatest impact locally and regionally. Examples of local impact would include high air pollutant concentrations near busy highways, and the impact of the former INCO's sulphur dioxide (SO_2) emissions on the Sudbury landscape (further detail on INCO below). Examples of regional impact would include Canadian and US contributions to each other's acid rain problem, and oil sands emissions affecting air quality in Edmonton and other areas outside immediate oil sands locations.

Climate change is addressed globally through the United Nations Framework Convention on Climate Change (UNFCCC) and its specific agreements such as the Paris Agreement (2015). Canada's climate change policies are to an important extent driven by obligations under these international agreements.

There are also international agreements on air pollution, such as the Convention on Long-range Transboundary Air Pollution (LRTAP) and the Gothenburg Protocol (1999). The 1991 Canada-US Air Quality Agreement (AQA) was created to reduce transboundary air pollution causing acid rain and was later extended to address smog. However, with the important exception of acid rain, where both Canada and the US were taking action against a common problem, Canada's air pollution policies have largely been driven by domestic priorities.

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[5] *Air Quality in Europe – 2020 report*, European Environment Agency, p29.
[6] See Hajat, Hsia and O'Neill *Socioeconomic Disparities and Air Pollution Exposure: A Global Review*, Current Environmental Health Reports, September 18, 2015.

Canada's policy approach to air pollution is known as the Air Quality Management System (AQMS). ECCC[7] describes AQMS as follows:

> AQMS is a harmonized approach to air quality management across Canada, where all levels of government work collaboratively and efficiently to respond to the different air quality challenges across the country. It includes four elements:
>
> - The Canadian Ambient Air Quality standards (CAAQS)
> - A framework for regional and local air quality management through air zones and regional airsheds
> - Base-level Industrial Emissions Requirements (BLIERs) for certain major industries
> - An intergovernmental working group to improve collaboration and reduce emissions from mobile sources.
>
> The CAAQS provide the basis for provincial and territorial governments to determine the level of action needed. The BLIERs are management instruments intended to ensure that all AQMS sectors in Canada meet a consistent, good base-level of environmental performance, regardless of the air quality where facilities are located. Provincial and territorial governments will monitor and manage their local sources of air pollution and have the opportunity to be the front-line regulator and take additional action on all sources to achieve the CAAQS, including potentially more stringent industrial emission standards for significant emitters.

4. What are the sources of air pollution in Canada?

The emission sources for the major air pollutants[8] in Canada are shown in Annex 1. With the important exception of $PM_{2.5}$, where dust (from construction operations, unpaved roads etc.) and agriculture together account for the great majority of emissions, many air pollutant emissions come from the extraction, processing and combustion of fossil fuels.

Transboundary flows of air pollutants are important in some regions. In Ontario, US sources are estimated to contribute over 80% of annual $PM_{2.5}$ concentrations in Windsor and Sarnia, and up to 40% in the GTA. Ozone[9] flows from the US contribute up to 40% of concentrations

[7] See RIAS to *Multi-Sector Air Pollutants Regulations*, Canada Gazette Part II, June 2016.
[8] The primary air pollutants addressed in this case study are sulphur oxides (SO_x), nitrogen oxides (NO_x), volatile organic compounds (VOCs) and fine particulate matter ($PM_{2.5}$).
[9] Ozone is a major component of smog; it is formed from the interaction of NO_x and VOCs.

on higher ozone concentration days.[10] These transboundary influences reinforce the importance of the Canada-US AQA.

5. What do the Americans do -- does the American dog bark?

The American dog – the federal Environmental Protection Agency (EPA) -- is quite noisy. Action is anchored in the federal *Clean Air Act*. While Canada's system emphasizes collaboration and discretion to governments on whether to act, many elements of the US system are legally mandated.

This difference is a specific example of a more general contrast between Canadian and US approaches to environmental policy that has received considerable attention from political scientists such as George Hoberg and Michael Howlett.[11] These authors refer to "action-forcing" statutes in the US, such as the *Clean Air Act*, which involve the establishment of specific standards by legislatures, where enforcement by administrative agencies is mandatory, and where compliance is enforced by the courts; they contrast this with the Canadian approach where "regulators enjoy substantial autonomy".[12] Hoberg suggests that this contrast in approaches arises from different systems of political institutions -- the separation-of-powers system in the US, where "Congress does not trust the executive", compared to Canada's parliamentary system where "the legislature and executive are fused" so that there is little incentive to restrict regulatory discretion. A related difference identified is "legalism" in the US leading to a "more open, formal and adversarial system", vs. a more "closed, informal, and cooperative" approach to environmental policy making in Canada.[13] That said, as early as 1993, Hoberg identified a "creeping legalism" in Canadian

[10] For a detailed discussion of transboundary influences on Ontario's smog, see *Air Quality in Ontario*, Ministry of the Environment and Climate Change, 2017 Report.
[11] See for example George Hoberg *Environmental Policy: Alternative Styles* in Michael M. Atkinson (ed.) *Governing Canada: Institutions and Public Policy*, Harcourt Brace & Company, 1993; George Hoberg *Governing the Environment: Comparing Canada and the United States* in George Hoberg, Richard Simeon, Keith Banting (eds.) *Degrees of Freedom: Canada and the United States in a Changing World*, McGill-Queen's University Press, 1997; and Michael Howlett *The Judicialization of Canadian Environmental Policy, 1980-1990: A Test of the Canada-United States Convergence Thesis*, Canadian Journal of Political Science, March 1994.
[12] See Howlett, p.107 and Hoberg (1997), p.354.
[13] Hoberg (1997), p.354.

environmental policy making[14]; arguably, that trend has intensified in the years since, though perhaps not so much in the area of industrial air pollution regulation.[15]

Some key elements of the US approach to clean air policy are as follows (emphasis added):

- For common pollutants, the *Clean Air Act* requires EPA to establish health-based national air quality standards. States are responsible for developing enforceable state implementation plans to meet the standards. Each state plan also must prohibit emissions that significantly contribute to air quality problems in a downwind state.
- For "hazardous air pollutants," also known as "air toxics", the *Clean Air Act* requires EPA to set emissions standards based on technology performance.
- The Act also requires EPA to regulate acid-rain forming emissions from power plants that cross state lines.

The US acid-rain program was highly successful in reducing emissions from the electric utility sector in a cost-effective manner.[16] Implemented in 1995, the cap and trade system for SO_2 was one of the first of its kind in the world, and has become a model for other cap and trade programs, including for GHGs.

Several ambitious initiatives have been proposed to build on the US acid-rain program, with mixed success. Following two initiatives by the George W. Bush Administration that were struck down in the courts, the Obama Administration finalized the Cross-State Air Pollution Rule (CSAPR) in 2012. This regulation addresses air pollution that crosses state lines by setting emission limits for SO_2 and nitrogen oxides (NO_X); although challenged in the courts, implementation began in 2015. EPA proposed an update to CSAPR in October 2020.

The EPA also has other regulations addressing air pollution from stationary sources. For example, the Mercury and Air Toxics Standards (MATS) Rule sets maximum emission rates for mercury and other air toxics from power plants, and delivers significant reductions in SO_2 as a co-benefit. In addition, the EPA sets technology based emission standards for new and modified facilities in a wide range of industrial sectors through the New Source Performance Standards (NSPS) program, and regulates air toxic emissions from industrial sectors through the National Emissions Standards for Hazardous Air Pollutants (NESHAP) program.

EPA also regulates air emissions from mobile sources. For example, with the passage of the *Clean Air Act* in 1970, the EPA began regulating NO_X emissions from light duty vehicles. EPA

[14] Hoberg (1993) p.333.
[15] Evidence of "creeping legalism" could include increased environmental regulation, enforcement and litigation, and standardization of regulatory processes including through the Treasury Board Secretariat and Cabinet Directive on Regulation.
[16] For example, see Stavins et al (2012).

also regulates the fuel used in those vehicles. Canada's vehicle emissions and fuel regulations are harmonized with those of the US.

Of course, the fact that the US EPA is proactive in regulating industrial air pollution is not in itself evidence that the US has high levels of air quality. In fact, EPA notes that while there has been great progress in air quality improvement, approximately 82 million people nationwide lived in counties with pollution levels above the primary National Ambient Air Quality Standards in 2019.

6. What are Canada's federal regulations on air pollution?

On vehicles and fuels, Canada's federal regulatory system is closely aligned with that of the US. Canada also has regulations on volatile organic compound (VOC) emissions from products. For stationary sources, however, ECCC is much less active in regulating air pollution than the US EPA.

ECCC sets national health-based air quality standards – Canadian Ambient Air Quality Standards (CAAQS) -- under the *Canadian Environmental Protection Act* (CEPA). However, Canada's standards are not legally-binding on provinces.

ECCC has just three regulations addressing common air pollutants from stationary sources. These are bundled in the Multi-Sector Air Pollutants Regulations (MSAPR) and cover:

- NO_X emissions from boilers and heaters in a range of industrial sectors
- NO_X emissions from engines used in a range of sectors, particularly oil and gas
- NO_X and SO_2 emissions from cement manufacturing.

In addition, ECCC has two regulations addressing hazardous air pollutants from stationary sources:

- A regulation dating from 1978 that limits the release of lead from secondary lead smelters
- A 2020 regulation addressing VOCs, including petroleum refinery gases such as benzene, from petroleum refining, upgraders and certain petrochemical facilities.

It should be noted that ECCC's 2018 regulation addressing methane emissions from the oil and gas sector also has the effect of reducing VOC emissions. There is no federal regulation on mercury emissions from stationary sources.

While the federal-province/state-local government dynamic exists in both Canada and the US, the approach to dealing with it when it comes to air pollution is evidently quite different.

7. Has the Canadian dog ever barked?

The Canadian dog has always been quiet -- management of air pollution from stationary sources has traditionally been left to the provinces. An observer in 1986 commented that the federal government had assumed a *de facto* staff function for industry and the provinces, and was focused on the collection and dissemination of information.[17] While there have been several proposals in the intervening years for the federal government to take a more active role, arguably the reality in 2021 is not very different than in 1986.

1970s to 2006

The fight against acid rain has been Canada's most significant air pollution initiative to this point. Acid rain rose to prominence as an urgent environmental issue in the late 1970s and early 1980s, and began to be resolved in the 1990s. The 1985 Eastern Canada Acid Rain Program brought in a regional emissions cap for Canada's seven easternmost provinces, as well as seven individual provincial caps. The Canada-Wide Acid Rain Strategy for Post-2000, released by CCME, followed in 1998.[18]

In her book *Passing the Buck: Federalism and Canadian Environmental Policy*, Kathryn Harrison discusses the federal role on the acid rain issue. She notes that "Both the Liberal and Conservative parties demanded a stronger federal role while in opposition, yet both cited constitutional constraints and the need to cooperate with the provinces while in government".[19] Key roles for the federal government were facilitating intergovernmental cooperation, research and monitoring, providing subsidies to support industrial pollution abatement, and engaging the US to reduce transboundary emission flows. This last effort culminated in the Canada-US Air Quality Agreement (AQA) in 1991. Federal regulatory action was limited to off-road engines, and sulphur content in gasoline and diesel fuels. As Harrison puts it "the acid rain strategy relied on provincial regulations supported by federal subsidies".[20]

A case in point is the INCO smelter in Sudbury, Ontario; in the 1960s and early 1970s, this was one of the largest single sources of SO_2 emissions in the world, and a major contributor to

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[17] Peter Nemetz, *Federal Environmental Regulation in Canada*, Natural Resources Journal, Summer 1986.
[18] Pollution Probe's *Acid Rain Primer* provides a useful overview of Canada's fight against acid rain. Other good sources include *Who Stopped the Rain*; *The Sudbury Model*; *Canada in 2020 -- Environment: Dirty Realities*; and *Declining Industrial Emissions*.
[19] Kathryn Harrison, *Passing the Buck: Federalism and Canadian Environmental Policy*, UBC Press, 1996, p90.
[20] *Passing the Buck*, p109.

acid rain. It was the Ontario government, not Ottawa, that imposed emission reduction requirements on INCO, driving significant and sustained emission reductions through the 1970s, 80s and 90s.

Canada's acid rain strategy was highly successful, and overachieved its emission reduction goals.

As explained by Harrison, the model for federal-provincial collaboration on air (and water) pollution at the time was set out in a series of bilateral accords signed in the mid-1970s. Roles identified for the federal government include establishing ambient environmental quality objectives, developing national baseline emission requirements in consultation with the provinces, and taking enforcement action if requested to do so by a province or should a province fail to meet national standards.[21] As will be seen below, this model continues today, as it is essentially the AQMS approach.

Evolution of federal authorities

While the federal government's authorities to regulate air pollution were less comprehensive in the 1970s and 1980s than they are today, the 1971 *Clean Air Act* nonetheless gave Environment Canada authority to regulate where there was a significant danger to health or to avoid contravening an international agreement. These authorities were used in 1978 as the basis for the secondary lead smelter release regulations.

Additional authorities were provided in 1980 in the context of Canada-US action to address acid rain; the federal government was authorized to regulate emissions that could endanger the health of persons in another country, provided that country provided comparable protection, and provided the Minister had first engaged the provinces to apply provincial law. However, the Minister at the time was explicit that "Indeed, it is my hope that the pollution authority provided to the federal government under these amendments will never need to be used"[22] – nor has it been used.

The 1988 *Canadian Environmental Protection Act* (CEPA88) replaced the *Clean Air Act*, and brought more structure to the *Clean Air Act's* authority to regulate where there is a danger to health by introducing the List of Toxic Substances, which continues in today's CEPA. Ironically, however, CEPA88 also made that authority more limited, by requiring the federal Minister to first be satisfied that not all provincial governments were prepared to implement

[21] *Passing the Buck*, p105.
[22] Minister John Roberts, House of Commons, December 16, 1980.

substantially the same requirements under their laws. That limitation was subsequently removed in the enactment of the current CEPA in 1999.

2006-2007 – years of regulatory promises

The year 2006 saw multiple proposals for a more active federal role in the regulation of air pollution.

- In April, Environment Canada published a Notice requiring the preparation of pollution prevention (P2) plans by base metal smelters and refineries and zinc plants. The P2 instrument in CEPA is something less than a regulation; a P2 Notice does not require a company to reduce emissions, but can require it to develop a plan to reduce emissions, and to report on progress on implementing the plan.[23] Of particular interest is that the Notice stated the intent to bring in regulations for these facilities by 2015; this never happened.

- Already in 2006, the Conservative platform for the January election had promised to "Develop a Clean Air Act to legislate the reduction of smog-causing pollutants". A Bill addressing both climate change and air pollution was introduced in the House of Commons in October 2006; introduced in a minority Parliament, it was highly controversial. Following significant amendments at Second Reading, the Bill would require the Minister to establish air quality standards, divide the country into air zones, and issue emission standards for facilities in any zone where the air quality standards are not being met. The Bill died with the proroguing of Parliament in September 2007.[24]

- Also in October 2006, the Government published a Notice of Intent (NOI) to regulate with respect to climate change and air pollution. The NOI included statements of intent to:
  - Establish emissions targets for air pollutants, based on fixed caps, that are "at least as rigorous as those in the U.S. or other environmental performance-leading countries"
  - Regulate air pollutant emissions from key industrial sectors with the regulations to be finalized by the end of 2010.

In 2007, the Government followed up on the 2006 NOI by publishing the Regulatory Framework for Air Emissions. The document indicated that "For the first time in Canada,

[23] See *Guidelines for Pollution prevention planning provisions of part 4 of CEPA*, ECCC 2019
[24] See Silvia Maciunas and Géraud de Lassus Saint-Geniès *The Evolution of Canada's International and Domestic Climate Policy*, Centre for International Governance Innovation, April 2018

there will be regulations setting mandatory and enforceable reduction targets for emissions of greenhouse gases and air pollutants from all major industrial sources."[25] The Framework provided further detail on the plans for regulating air pollutant emissions, including:

- The approach to be used to set national and sectoral emission caps for the major pollutants, including benchmarking against the most stringent regulatory regimes in Canada and other countries
- Plans for a domestic emission trading system
- Improvements in air quality and health expected to result from the regulated emission reductions.

Of note is that while the NOI and Framework emphasized the importance of consultations with provinces and stakeholders, and the development of equivalency agreements with provinces, the focus was nonetheless clearly on unilateral federal action.

Air Quality Management System (AQMS)

The NOI and Framework ushered in a period of intensive federal-provincial engagement on air quality, but with a focus that changed significantly during that period. Canadian Council of Ministers of the Environment (CCME) Ministers, in their communique following their meeting of September 2007, noted that CCME would be used as a key mechanism in shaping the development of the federal Framework. However, the focus would soon shift away from the federal Framework to a joint federal-provincial approach.

In February 2009, CCME Ministers noted that they had been provided with an update on "the development of a new, comprehensive air management system for Canada". Then in October 2010, Ministers stated that they were "moving forward with a new collaborative air management approach". In June 2011, Ministers noted that they were pleased with progress on the development of the Air Quality Management System (AQMS), based on "a proposal developed collaboratively by representatives of industry, health and environmental non-government organizations, and federal, provincial and territorial governments". Finally, in October 2012, Ministers[26] agreed to implement the AQMS. The approach to industrial emission regulation laid out in the 2007 Regulatory Framework for Air Emissions never materialized.

[25] Government of Canada *Regulatory Framework for Air Emissions*, 2007, ppiii-iv
[26] Quebec was an exception; Ministers indicated that while Quebec supports the general objectives of AQMS, it would not implement the system since it includes federal industrial emission requirements that duplicate its own regulation.

Key elements of AQMS were set out above. As noted, ECCC has stated that provinces and territories "have the opportunity to be the front-line regulator". Further detail on Base-Level Industrial Emissions Requirements (BLIERS) in a CCME document indicates that "the federal government will regulate where feasible, or use alternative instruments, to establish the BLIERs across Canada, which will function as a backstop to provincial and territorial instruments implementing the BLIERs.[27] The CCME website does not identify those industrial sectors for which BLIERS have been developed, nor point to federal, provincial or territorial instruments that are implementing those BLIERS. With respect to the petroleum refining sector specifically (see below), the CCME website references a policy document from 2005.

With its emphasis on national ambient standards; national baseline emission requirements developed jointly by federal and provincial governments; and a front-line role for the provinces in regulation, AQMS is essentially the same model for air management that Harrison noted existed in the mid-1970s.[28]

Recent policy initiatives

In 2016, ECCC published what are to date its only regulations under AQMS, the Multi-Sector Air Pollutants Regulations, covering boilers and heaters, engines used in oil and gas, and cement manufacturing. A regulation addressing VOCs from petroleum refining, upgraders and certain petrochemical facilities followed in 2020.

In June 2017, the House of Commons Standing Committee on Environment and Sustainable Development called for a more proactive role for the federal government in air quality. The Committee included in its review of CEPA a recommendation that the federal government be required to develop legally binding and enforceable national standards for air quality; this "action-forcing" proposal reflected advice from several witnesses from the environmental community who recommended that Canada's system be more like that of the US. In its response to the Committee, the Government indicated that while it supported the intent of the Committee's recommendation, it was committed to continuing to take action through AQMS; the response stated that mandating federal legally binding and enforceable air quality standards "could undermine the effectiveness" of the AQMS collaborative approach.[29]

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[27] CCME *The Air Quality Management System: Federal, Provincial and Territorial Roles and Responsibilities*.
[28] *Passing the Buck*, p105.
[29] Government of Canada *Follow-Up Report to the House of Commons Standing Committee on Environment and Sustainable Development on CEPA*, pp30-31.

Summary – policy initiatives from 1970s to 2020

Since its creation in 1971, Environment Canada has consistently played a secondary role to the provinces in the regulation of air pollutants from industrial sources. While at first this situation may have reflected limited legislative authorities, it has continued despite the strong authorities provided by CEPA; ECCC now has all the authorities it needs but chooses not to use them. The Government in 2006-07 stated it would take a more proactive approach, but this never materialized. As recently as 2018, ECCC resisted a Parliamentary recommendation that would have required it to be more proactive.

8. Is there a problem -- maybe the dog doesn't need to bark?

Canada's overall air quality is relatively high

In its State of the Air Report, CCME indicates that "Canadians enjoy a good level of outdoor air quality. Emissions of air pollutants that cause smog and acid rain have decreased significantly during the past decades." However, the Report also notes that "poor air quality remains a serious issue in some areas of Canada".

CCME's positive assessment is supported by other sources. The OECD reports on population exposure to fine particulate matter ($PM_{2.5}$), the air pollutant that poses the greatest risk to health globally; in 2019, only seven OECD countries (primarily in northern Europe) had a lower exposure than Canada's. Similarly, the World Health Organization ranks Canada 6th best in the world in exposure to $PM_{2.5}$.

However, it is also important to note that these relatively low – by world standards – levels of exposure to air pollution were factored into Health Canada's analysis, and the department still found annual mortalities of 15,300.[30] Similarly, CCME itself notes that "Air pollutants…can adversely affect the health of Canadians, especially small children, the elderly, and those with heart and lung conditions, even at low concentrations".

Air pollutant emissions have generally been decreasing

CCME's statement that emissions of the major air pollutants have decreased significantly over the past decades is true as a generalization. A close look at the data[31], however, suggests some nuances. First, emissions of $PM_{2.5}$ are higher than in the late 1990s and have been steadily increasing since 2009. Second, while NO_x emissions have been on a decreasing trend

[30] See Health Canada *Health Impacts of Air Pollution in Canada*, 2021, pp7-16.
[31] See ECCC *Canada's Air Pollutant Emissions Inventory Report 1990–2019*, 2021, and CCME *Canada's Air* Report.

since 1990, this has been driven by two sectors – transportation and electricity.[32] Total NO_x emissions for all other sectors are at the same level as in 1990.

ECCC has been regulating air pollution indirectly

ECCC has been regulating industrial air pollution indirectly by regulating GHGs. As noted previously, the regulations limiting methane emissions from oil and gas have important co-benefits in reducing VOC emissions.[33] Indeed, a similar US EPA regulation in 2012 was communicated as an air pollution initiative. In addition, ECCC's regulation on coal-fired electricity (introduced in 2012 and amended in 2018), though driven by GHG objectives, will have important air pollution co-benefits by phasing out coal-fired electricity generation.[34]

Provinces are acting

It may be argued that Canada's federation is working, provinces are limiting industrial air pollution so there is no need for the federal government to intervene. And certainly all provinces have regimes in place to limit pollution. Do these regimes result in pollution controls at a level that might be expected of a world-class regulatory system?

For the petroleum refining sector at least, the answer is in doubt. Canada's refineries have been reducing their emissions: the Canadian Fuels Association (CFA) points out, using ECCC data, that refinery emissions of the major air pollutants have decreased by between 41% and 49% from 2002 to 2019. However, a 2018 Ecojustice report, also using ECCC data[35], found that Canadian refineries are significantly more polluting than their US counterparts; as reported by Global News and the Toronto Star, opposition politicians found these findings "a wake-up call" and "deeply troubling", while the Environment Minister stated "We need to do better".

It should be noted that, in addition to being responsible for their own emissions, refiners have been called on to make significant investments to enable emission reductions from the final consumption of the fuels they produce. Canada has stringent regulations that limit the sulphur content of gasoline and diesel, aligned with US standards. The CFA indicates that its

[32] More generally, transportation (due to cleaner vehicles resulting from stringent regulatory emission standards) and electricity (due to coal phase-out, particularly in Ontario) have been the major contributors to various pollutant reductions nationally; for the same reason, among provinces and territories, Ontario dominates in terms of emission reductions.
[33] See Regulatory Impact Analysis Statement (RIAS) for methane regulations, Canada Gazette II, April 26, 2018
[34] Air quality benefits represent 28% of the overall estimated economic benefits from coal phase-out – see RIAS for amended regulations, Canada Gazette II, December 12, 2018.
[35] The analysis uses data from 2014-15.

members spent $5 billion from 2000 to 2018 to reduce sulphur content in gasoline and diesel.

Ironically, while recognizing AQMS, ECCC itself when bringing forward the Multi-Sector Air Pollutants Regulations in 2016 acknowledged the need for federal action:

> Actions to manage industrial emissions currently vary across Canada and the requirements are different from one province or territory to another. In addition, air pollutants travel across provincial boundaries and to and from the United States (U.S.). Such interjurisdictional issues are federal responsibility. While federal, provincial and territorial governments continue to work together under the auspices of the Air Quality Management System, federal action is necessary to establish a nationally consistent approach to reduce industrial air pollutant emissions.[36]

9. Some final thoughts

The above section has noted some factors that suggest the relative inaction on the part of the federal government may not actually be a problem. In addition, even if one believes that the federal government should in principle be more proactive in this area, there may be other factors that help explain why it is not.

One element is that governments have only limited policy capacity, and limited political energy to expend on policy initiatives, particularly if those initiatives might be expected to generate some resistance from provinces and industry. In Canada, over the last 10-15 years, environment policy debate has been dominated by climate change – and sometimes very specific points of climate policy, such as the pros and cons of carbon pricing – leaving little "policy oxygen" for other issues such as air pollution.

In addition, even if one accepts that a sound environment and a strong economy are mutually reinforcing, in the short to medium term many environmental initiatives do impose costs on industry and/or consumers. Over the last number of years, Canada's industrial sectors have needed to adjust to federal climate change regulations related to coal-fired and gas-fired electricity, methane emissions, carbon pricing, vehicle emissions, and a proposed clean fuel standard – in addition to climate change measures introduced by provinces. It would not be a surprise if industry would raise competitiveness concerns should ECCC propose to intervene more actively in the regulation of industrial air pollution, particularly if that

[36] See RIAS to *Multi-Sector Air Pollutants Regulations*, Canada Gazette Part II, June 2016.

intervention was considered a deviation from an existing policy framework that was developed through consensus.

It should also be noted that the federal government has been active in non-regulatory areas related to air quality. Canada plays a leading role in international negotiations, such as those concerning the Gothenburg Protocol, and the Canada-US Air Quality Agreement is a model for a successful bilateral environmental agreement. ECCC publishes a detailed inventory of air pollution emissions as well as projections out to 2030, has an active air quality monitoring program, and issues the Air Quality Health Index which reports on local air quality in real time. Health Canada's science on the health aspects of air pollution is world-class, and is the basis for the Canadian Ambient Air Quality Standards (CAAQS), which are equivalent in rigour to the US National Ambient Air Quality Standards (NAAQS). ECCC conducts world-class atmospheric science.

All that said, the fact remains that since its creation 50 years ago, ECCC has been largely absent from the regulation of industrial air pollution. Any legislative constraints on its ability to regulate have long since disappeared. Various promises to regulate have not been kept. In contrast, federal regulation of industrial GHG emissions has ramped up since the 2012 coal-fired electricity regulation, and federal regulation of water pollution is proceeding as intended by the 1970 amendments to the Fisheries Act.[37] At time of writing (April 2021) the Supreme Court has recently upheld the constitutionality of federal carbon pricing, record sentences are being imposed for violations of the water pollution provisions of the *Fisheries Act*, and the government is proposing to recognize Canadians' right to a healthy environment in CEPA. In this context, the low federal profile on regulation of industrial air pollution stands out.

10. Questions for Discussion

1) After reading the case study, do you conclude that Canada's system of federal-provincial collaboration is working as it should, or do you think that ECCC should be more active in regulating industrial air pollution? What should be the respective roles of the federal and provincial governments in managing air pollution?

2) What should be the expectations for a world-class federal environmental regulatory agency?

[37] See Carleton University Regulatory Case Studies: Coal-Fired Electricity and Canada's *Fisheries Act*.

3) Canada is more aligned with the US on the regulation of air pollution from vehicles and fuels than on the regulation of industrial air pollution. Can you think of some possible reasons for this difference? What sort of information/data would you need to determine whether these reasons are well-founded?

4) In 2006-07, the Conservative Government of the time promised federal leadership in the regulation of industrial air pollution. Why do you think that never happened?

5) What do you think would be the position of provinces if the federal government were to become more proactive in regulating industrial air pollution? What do you think would be the position of industry?

6) Industry has in the past raised concern about the cumulative competitive impact of environmental regulation. Do you think those concerns are well-founded? What kind of analysis would be useful in grounding your opinion?

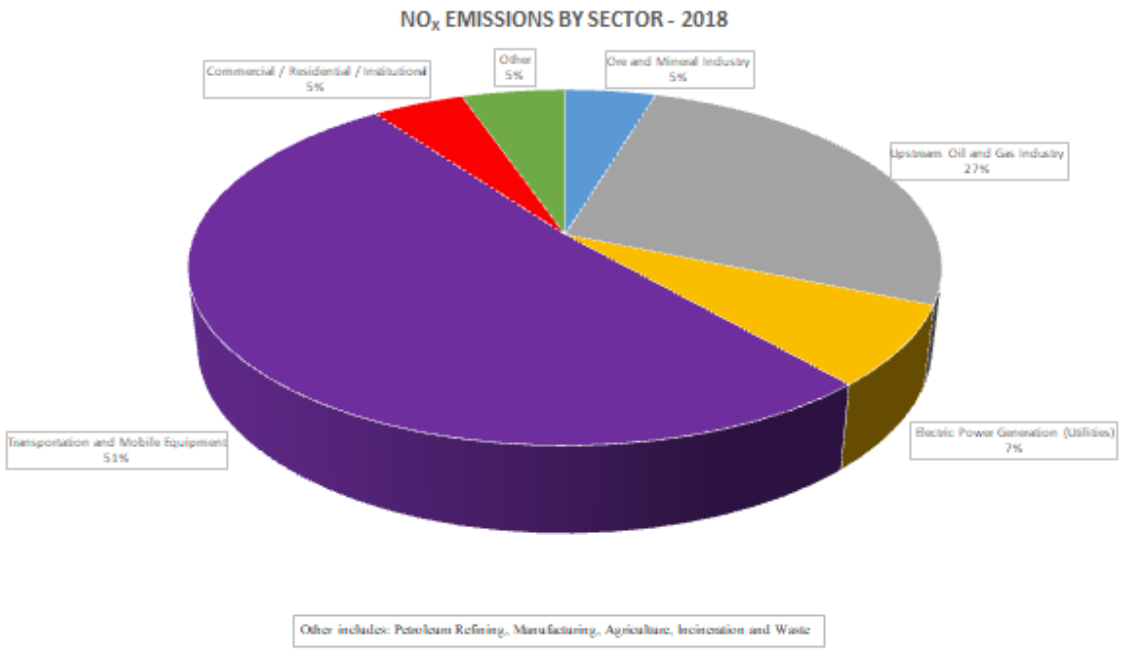
7) Do you think environmental regulation needs to be justified, or should it be taken for granted? What is the basis for your opinion, and how would you defend it?

8) There is some evidence that Canada is moving towards a more legalistic approach to environmental policy making, such as exists in the US. This evidence includes increasing regulation and enforcement, increasing litigation related to the environment, and very recently a proposal to recognize a right to a healthy environment in CEPA. Do you think this "creeping legalism" is a good thing, or is the previous approach, described as "closed, informal and cooperative", to be preferred?

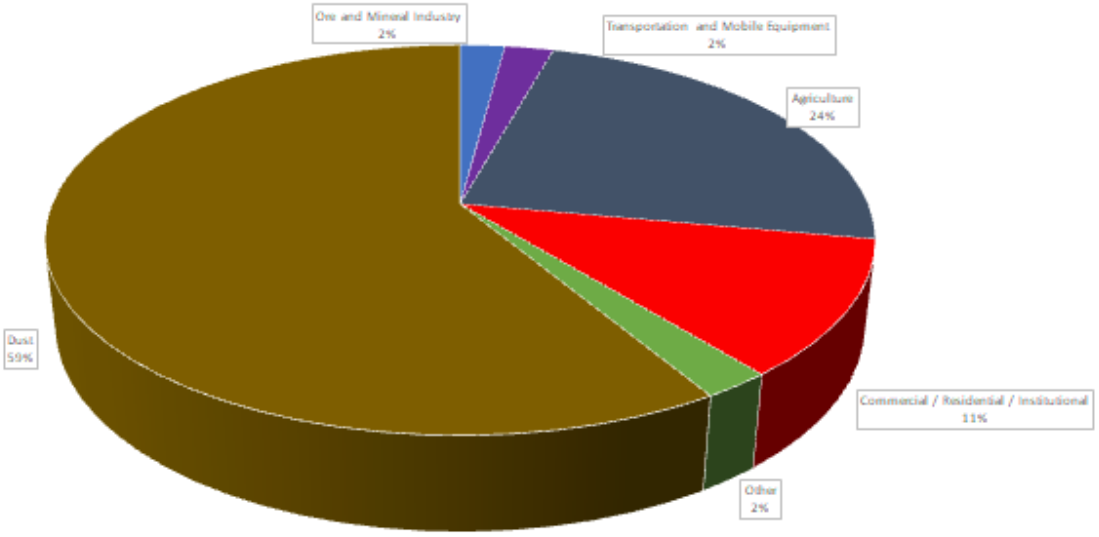
9) Environmental groups have generally been relatively silent in recent years about air pollution, and have focused their energies on climate change. Do you think that's a reasonable position for them to take?

10) Let's suppose you were asked to provide advice to a new Minister of ECCC. What would your advice be with respect to ECCC's role in regulating industrial air pollution? What reasons would you give for your position? How would the likely positions of provinces and industry factor into your advice?

Annex 1

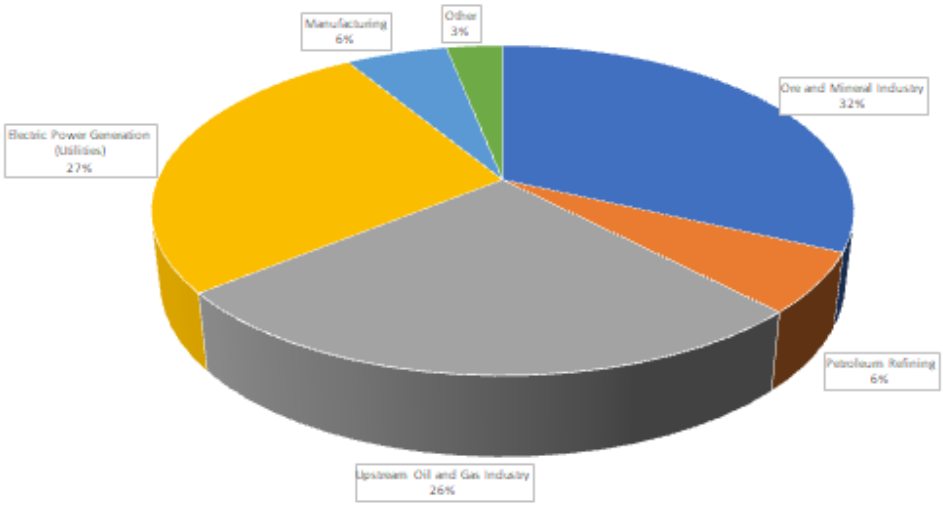

NOx EMISSIONS BY SECTOR - 2018
Commercial / Residential / Institutional 5%
Other 5%
Ore and Mineral Industry 5%
Upstream Oil and Gas Industry 27%
Electric Power Generation (Utilities) 7%
Transportation and Mobile Equipment 51%
Other includes: Petroleum Refining, Manufacturing, Agriculture, Incineration and Waste

$PM_{2.5}$ EMISSIONS BY SECTOR - 2018

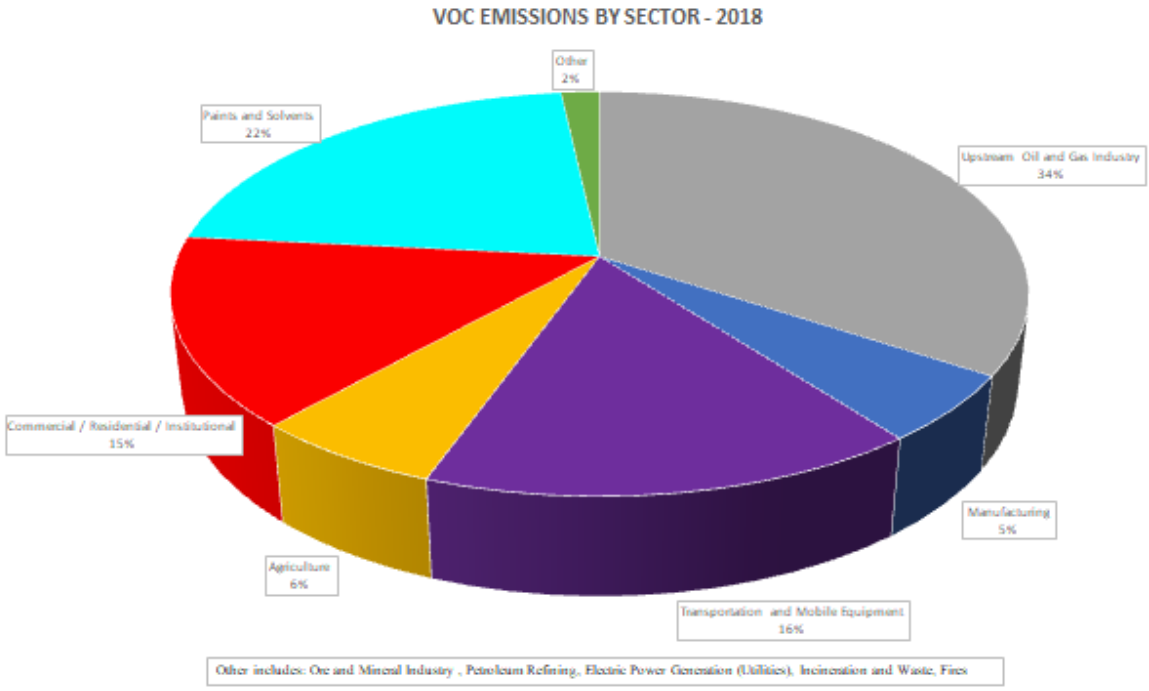


Other includes: Petroleum Refining, Upstream Oil and Gas Industry, Electric Power Generation (Utilities), Manufacturing, Incineration and Waste, Paints and Solvents, Fires

SO_X EMISSIONS BY SECTOR - 2018



Other includes: Transportation and Mobile Equipment, Agriculture, Commercial / Residential / Institutional, Incineration and Waste



Data source: ECCC *Canada's Air Pollutants Emissions Inventory Report, 1990-2018*