

Canada Air Quality Policies

This document is based on research that UNEP conducted in 2015, in response to Resolution 7 of the UNEA 1. It describes country-level policies that impact air quality. Triple question marks (???) indicate that information for the section couldn't be found.

Please review the information, and provide feedback. A Word version of the template can be provided upon request. Corrections and comments can be emailed to Vered.Ehsani@unep.org and George.Mwaniki@unep.org.

Canada Air Quality Policy Matrix		
Goals	Status	Current Policies & Programmes
GENERAL OVERVIEW	<p>Overall situation with respect to air quality in the country, including key air quality challenges:</p> <ul style="list-style-type: none"> • Air quality has improved significantly in Canada over the last few decades. • The period 1990 to 2014 saw a marked reduction in emissions of air pollutants, including fine particulate matter (PM_{2.5}) (57%; excluding open sources), nitrogen oxides (NO_x) (33%), sulphur dioxide (SO₂) (63%) and carbon monoxide (CO) (62%). • Between 1998 and 2012, average ozone levels decreased by 15%, and between 2000 and 2012, national averages of the annual and the 24-hour concentrations of PM_{2.5} decreased by 4% and 6.5%, respectively. • However, ozone and particulate matter continue to represent key pollutants of concern, and further reductions remain a major challenge, especially for urban areas. • In 2008, the Canadian Medical Association 	<p>National Ambient Air Quality Standards: Yes</p> <ul style="list-style-type: none"> • The Government of Canada established more stringent Canadian Ambient Air Quality Standards (CAAQS) for PM_{2.5} and ground-level ozone to replace previous Canada Wide Standards, as objectives under the <i>Canadian Environmental Protection Act, 1999</i> (CEPA) in 2013. The standards took effect in 2015, and will be replaced by increasingly stringent standards in 2020. Additional standards are being developed for SO₂ and NO₂. <p>National Air Quality Policy:</p> <ul style="list-style-type: none"> • Protection of the environment is an area of shared jurisdiction in Canada. In 2012, federal, provincial and territorial Ministers of the Environment agreed to implement a new Air Quality Management System (AQMS), a comprehensive, cross-Canada system for coordinated action to protect human health and the environment through continuous improvement to air quality. The system includes four key elements: <ol style="list-style-type: none"> 1) Canadian Ambient Air Quality Standards (CAAQS); 2) Base-level Industrial Emissions Requirements (BLIERs) that target the reduction of harmful air pollutant emissions from key industrial sectors and equipment groups; 3) Management of air quality through local air zones and regional airsheds; and 4) A collaborative effort to reduce emissions from mobile sources.

estimated that as many as 21,000 premature deaths each year are associated with air pollution in Canada.

- In 2012, approximately 28% of Canadians lived in regions where ambient air quality standards were exceeded.

Air quality monitoring system:

- Ambient air pollutant concentrations are monitored by a sophisticated National Air Pollution Surveillance (NAPS) program and stored in a publicly available air quality database. The program is operated under a memorandum of understanding between the federal government and the provincial and territorial governments.
- Provinces and territories may have additional ambient air pollutant monitors and may include this data into the air quality database following strict quality assurance and quality control procedures.
- The Canadian Air and Precipitation Monitoring Network includes a number of monitoring sites across Canada in more remote locations. These data are archived in the National Atmospheric Chemistry Database and analyzed to support research into acid rain, smog and mercury in the environment.
- Data from ground-level networks of monitoring stations are complemented by air quality data collected through advanced technologies such as

- The CAAQS are designed to drive improvements in air quality. They provide the basis for provincial and territorial governments to determine the required level of air quality management action.

- Provinces and territories manage air quality within local air zones using a framework that contains four air quality management levels. These management levels encourage jurisdictions to implement progressively more rigorous actions as air quality approaches or exceeds the CAAQS. Provinces and territories select air quality management actions tailored to each air zone and based on air zones that exceed the CAAQS or where there is a greater risk of exposure.
- In some cases, provincial and territorial air quality policy is further guided by provincial or territorial air quality plans, clean air strategies, and/or energy plans (e.g. *Clearing the Air: Alberta's Renewed Clean Air Strategy* and British Columbia's *Air Action Plan*).

Air Quality legislation / programmes:

- CEPA provides the federal government with authority to: set national ambient air quality objectives; regulate the release of air pollutants listed under the Act; regulate emissions performance of a wide range of on-road and off-road vehicles and engines; and regulate compounds in fuel which could contribute to air pollution.
- Under CEPA, the federal government has implemented close to 20 regulations that have contributed to reducing air pollutant emissions from industrial and non-industrial sources. These regulations target releases by industrial facilities, emissions from consumer products, vehicle and engine performance, and fuel quality of gasoline and diesel fuels.
- In addition to these regulatory actions, Canada's Chemical Management Plan has been implemented to reduce the risks posed by chemicals to Canadians and their environment. Measures under this initiative that improve air quality include regulatory requirements implemented under Part 5 of CEPA and other planning and reporting requirements under Part 3 and Part 4 of the Act.
- Provinces and territories have also developed their own legislative and regulatory frameworks to address air quality.

	satellite measurements from space.	
REDUCE EMISSIONS FROM INDUSTRIES	<p>Industries that have the potential to impact air quality:</p> <ul style="list-style-type: none"> • Key industries contributing to air pollution in Canada include: upstream and downstream petroleum, non-ferrous mining and smelting, aluminium, cement and concrete, iron and steel, chemicals, pulp and paper, and wood. <p>GDP of country: USD 1.825 trillion in 2013¹</p> <p>Industries' share of GDP: 28.4%²</p> <p>Electricity sources:</p> <ul style="list-style-type: none"> • In 2014: 17.2% of the installed electricity generating capacity (98,198 GWh) was generated from fossil fuels, 17.8% from nuclear, 60.9% from hydroelectric plants and 2% from other renewable sources, and 2% from other sources³ 	<p>Emission regulations for industries:</p> <ul style="list-style-type: none"> • Base-level Industrial Emissions Requirements (BLIERs) being phased in under the Air Quality Management System target the reduction of harmful air pollutant emissions from key industrial sectors and equipment groups. • The Government of Canada has published proposed <i>Multi-sector Air Pollutants Regulations</i> to implement BLIERs covering the cement industry, stationary engines, and boilers and heaters, as well as Codes of Practice for the aluminium sector and for the iron, steel and ilmenite sector. • Federal regulatory action on greenhouse gases, such as the <i>Reduction of Carbon Dioxide Emissions from Coal-Fired Generation of Electricity Regulations</i> will result in air pollution co-benefits as end-of-life units shut down. • Provincial and territorial governments also regulate industrial sources (e.g. emissions standards for certain industrial sources in Alberta, Ontario and Quebec, <i>Cessation of Coal Use Regulation</i> in Ontario). <p>Small installation's emissions regulated: (Yes/No) Yes</p> <p>Renewable energy investment promoted:</p> <ul style="list-style-type: none"> • The Government of Canada manages several funding, grants and incentive programs to encourage research, development, demonstration and deployment of clean technologies and renewable energy in Canada (e.g., fostering dialogue and development of regional plans for clean electricity transmission; investing in clean energy solutions to help get Indigenous, remote and northern communities off diesel; funding for Sustainable Development Technology Canada, etc.) • Canada participates in the IEA's Implementing Agreement on Renewable Energy Technology Deployment (IEA-RETD) to facilitate the development and sharing of information on topical policy issues surrounding the deployment of renewable power, and

¹ 'Countries of the World - 32 Years of CIA World Fact Books', 2015 <<http://www.theodora.com/wfb/#R>>.

² 'Countries of the World - 32 Years of CIA World Fact Books'.

³ Canada (2016). National Inventory Report 1990-2014: Greenhouse Gas Sources and Sinks in Canada, Part 3.

		<p>to ensure the access to best practices policies and initiatives in world-leading countries.</p> <ul style="list-style-type: none"> • Many provincial and territorial governments have adopted various policies to promote the use of renewable energy, such as renewable energy targets. <p>Energy efficiency incentives: (<i>ex: Subsidies, labelling, rebates etc</i>):</p> <ul style="list-style-type: none"> • Natural Resources Canada delivers a number of energy efficiency programs, including some targeted to industrial applications. • Canada’s <i>Energy Efficiency Regulations</i> set minimum energy performance standards for energy-using products. • Energuide is Canada’s energy-efficiency labelling program and rating system for major appliances, room air conditioners and some heating and ventilating equipment. The ENERGY STAR symbol identifies products that have met or exceeded technical specifications for high efficiency. Natural Resources Canada is also working with the U.S. to align energy efficiency standards and expand shared labelling programs, such as ENERGY STAR. • Many provincial and territorial governments offer energy efficiency incentives. <p>Incentives for clean production and installation of pollution prevention technologies:</p> <ul style="list-style-type: none"> • Some of the federal programs described above also support clean production. <p>Actions to ensure compliance with regulations: (<i>monitoring, enforcement, fines etc</i>)</p> <ul style="list-style-type: none"> • The federal government has a robust compliance promotion and enforcement regime that employs a variety of enforcement actions, from tickets, warnings and fines to prosecution, to ensure compliance with regulatory requirements.
<p>REDUCE EMISSIONS FROM TRANSPORT</p>	<p>Key transport-related air quality challenges: (<i>ex: vehicle growth, old fleet, dirty fuel, poor public transport etc</i>)</p> <ul style="list-style-type: none"> • Transport is among the most important sources 	<p>Vehicle emission regulations: (<i>Euro rating</i>)</p> <ul style="list-style-type: none"> • In 2003, Canada adopted the <i>On-Road Vehicle and Engine Emission Regulations</i> that phased-in the U.S. Tier 2 air pollutant emission standards for new cars and light-duty trucks over the 2004-2009 model years. These regulations also phased-in the U.S. Phase 1

	<p>of air pollution in the Canada.</p> <ul style="list-style-type: none"> • In the major cities public transport is well developed and several options spanning from railways, trams, metros and busses are available for commuters. • Use of personal cars is the most dominant mode of transport. • Private car ownership is high with 607 cars per 1000 individuals in 2012.⁴ 	<p>(2004 model year) and Phase 2 (2007 and 2010 model years) air pollutant emission standards for on-road heavy-duty vehicles and engines and standards for motorcycles.</p> <ul style="list-style-type: none"> • In July 2015, Canada amended these regulations to align with U.S. Tier 3 vehicle emission standards. The regulations introduce progressively more stringent air pollutant emissions standards for new cars and light-duty for 2017 to 2025 model years. • Canada has also put in place air pollutant emission regulations covering many classes of vehicles and engines in the off-road sector, in alignment with U.S. standards. • Regulations are complemented by transportation programs and policies in many provinces and territories that aim to reduce air pollutant emissions from in-use vehicles, such as legislated annual motor vehicle inspections for exhaust systems, vehicle anti-idling campaigns and scrappage or retrofitting programs for older, higher polluting vehicles. <p>Fuel Sulphur content: (<i>in ppm</i>)</p> <ul style="list-style-type: none"> • Canada's <i>Sulphur in Gasoline Regulations</i> limit the annual average sulphur content of gasoline to 30 ppm. A lower limit of 10 ppm will take effect beginning in 2017. • Canada's <i>Sulphur in Diesel Fuel Regulations</i> limit the sulphur content of diesel fuel for on-road and various non-road applications (including off-road engines, non-large marine vessels, rail locomotives, and small stationary engines), to a maximum of 15 ppm. <p>Fuel Lead content: All on-road vehicles use lead free gasoline. Lead is still allowed in aviation gasoline.</p> <p>Restriction on used car importation:</p> <ul style="list-style-type: none"> • Used cars imported into Canada must comply with emission regulations for vehicles and engines. In general, a vehicle is required to comply with the emission standards that are applicable to vehicles of its class at the time of its manufacture. <p>Actions to expand, improve and promote public transport and mass transit:</p> <ul style="list-style-type: none"> • The Government of Canada offers a tax credit for public transit, and provides funding to provinces, territories and municipalities for sustainable transportation initiatives,
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⁴ World Bank, *Worldwide Total Motor Vehicles (per 1,000 People)*, 2011 <<http://chartsbin.com/view/1114>> [accessed 30 June 2015].

		<p>including for public and mass transit-related infrastructure.</p> <ul style="list-style-type: none"> • Many provinces and territories are investing in non-motorized transport. For example, Ontario is investing \$31.5 billion over 10 years in new transit and transportation infrastructure including 1200 kilometres of rapid transit and over 7000 kilometres of new lanes, trails and pathways for pedestrians and cyclists. <p>Actions to promote non-motorized transport: <i>(ex: include sidewalks and bike lanes in new road projects, car-free areas etc)</i></p> <ul style="list-style-type: none"> • The Government of Canada provides funding to provinces, territories and municipalities for sustainable transportation initiatives, including those that promote non-motorized transport. • Many provinces and territories are investing in non-motorized transport.
<p>REDUCE EMISSIONS FROM OPEN BURNING: OUTDOOR</p>	<p>Outdoor, open burning:</p> <ul style="list-style-type: none"> • Forest fires can significantly deteriorate air quality in some regions within Canada. • Burning of agricultural waste may also impact local regional air quality. • Other open-air burning activities typically include: general public activities (e.g. bonfires); habitat and ecosystem renewal; and community applications. 	<p>Legal framework:</p> <ul style="list-style-type: none"> • Most provinces and territories have forest protection and fire management legislation within their air quality regimes, as well as municipal by-laws regulating solid waste and open burning. • Many Canadian communities have developed bylaws prohibiting open burning or restricting the types of materials that can be open-burned. <p>Actions to prevent open burning of municipal waste and / or agricultural waste:</p> <ul style="list-style-type: none"> • In 2015, the Canadian Council of Ministers of the Environment (CCME) published a Guidance Document for Canadian Jurisdictions on Outdoor Open-Air Burning. It provides information on best practices to ensure that residential, agricultural, and ecological open-air burning activities are conducted in a responsible manner, minimizing potential adverse human health and environmental impacts (www.ccme.ca). • Provinces, territories and municipalities use the following tools to regulate open-air burning: <ul style="list-style-type: none"> • Regulations: <ul style="list-style-type: none"> ○ Provincial and Territorial Regulations ○ Municipal By-Laws

		<ul style="list-style-type: none"> • Air Quality Advisories and Burn Restrictions: <ul style="list-style-type: none"> ○ Notifications ○ Burn Restrictions (Voluntary No-Burn Days; Mandatory No-Burn Days; Fire Bans and Restrictions) • Some provinces make use of education and incentive programs to promote improvements in crop residue management and to reduce burning. Quebec, for example, provides financial support to municipalities and private industry to establish infrastructure to process organic matter through biomethanization or composting.
<p>REDUCE EMISSIONS FROM OPEN BURNING: INDOOR</p>	<p>Dominant fuels used for cooking and space heating:</p> <p>Impact:</p> <ul style="list-style-type: none"> • Burning of biomass for space heating is common during wintertime and is one of the largest sources of emissions of particulate matter, VOCs as well as other toxics, and a key contributor to wintertime smog 	<p>Indoor air pollution regulated: <i>(Yes / No)</i></p> <ul style="list-style-type: none"> • Indoor air pollution in residences is not regulated at the federal level. Some federal regulations may affect some specific sources of indoor air pollution, for example, under the Canada Consumer Product Safety Act. • Some provinces and municipalities regulate residential wood burning appliances. Typically these regulations require that appliances offered for sale need to meet EPA or Canadian Standards Association certification requirements, or specify installation requirements. <p>Promotion of non-grid / grid electrification: n/a</p> <p>Promotion of cleaner cooking fuels and clean cook stoves: n/a not a notable source of emissions in Canada</p> <p>Other actions to reduce indoor biomass burning, or to reduce its emissions:</p> <ul style="list-style-type: none"> • There are a number of initiatives at all levels of government to promote the use of advanced technology wood burning appliances which have lower pollutant emissions. These actions range from communications and outreach to financial incentives (change-out) programs to capacity building tools.