COMPENDIUM OF CANADA'S ENGAGEMENT IN INTERNATIONAL ENVIRONMENTAL AGREEMENTS AND INSTRUMENTS

UNECE Protocol to Abate Acidification, Eutrophication, and Ground-level Ozone (Gothenburg Protocol) *(Protocol to the UNECE Convention on Long-Range Transboundary Air Pollution (LRTAP))*

SUBJECT CATEGORY:
Air

TYPE OF AGREEMENT / INSTRUMENT:
Multilateral

FORM:
Legally-binding treaty

STATUS:

- Canada ratified the Gothenburg Protocol and its amendments on November 28, 2017 and submitted its commitments for automatic incorporation into the Protocol
- Signed by Canada December 1, 1999
- In force internationally May 17, 2005
- Amended Protocol adopted May 4, 2012, came into force October 7th 2019

LEAD & PARTNER DEPARTMENTS:
Lead: Environment and Climate Change Canada
Partners: Health Canada, Agriculture and Agri-Food Canada, Global Affairs Canada

FOR FURTHER INFORMATION:

***Web Links*:**

- Text of the Gothenburg Protocol, original text and as amended (2012):
- National Pollutant Release Inventory
- Air Pollutant Emissions Inventory:

Contacts:
ECCC Inquiry Centre

COMPENDIUM EDITION:
January 2020

PLAIN LANGUAGE SUMMARY

The Gothenburg Protocol was established to address pollutants that cause acidification and ground-level ozone with the understanding that air pollutants cross borders and affect air quality far from where emitted. It sets limits on air pollutants including sulphur dioxide, nitrogen oxide, ammonia and volatile organic compounds that are hazardous to human health and the environment. It was updated in 2012 to include particulate matter (PM) and black carbon (as a component of PM) and to include new commitments for 2020.

LRTAP and its Protocols are unique. The organization is a leading scientific and policy forum for air pollution and closely links science and policy. This cooperation has been very effective and key to its success.

OBJECTIVE

The Gothenburg Protocol under the United Nations Economic Commission for Europe's (UNECE) LRTAP Convention was amended to add particulate matter (PM) and new commitments for 2020 and beyond. The objective of the amended Gothenburg Protocol is:

- to control and reduce emissions of sulphur dioxide (SO_2), nitrogen oxides (NO_x), ammonia (NH_3), volatile organic compounds (VOCs), and PM that are caused by human activities and likely to cause adverse effects on human health and the environment, ecosystems, crops, materials and the climate, in the short- and long-term as a result of long-range atmospheric transport;
- to ensure that atmospheric depositions or concentrations do not exceed critical loads/levels;
- that Parties give priority, in implementing measures to reduce PM, to sources that are also significant sources of black carbon to provide benefits for human health and the environment and to help mitigation of near-term climate change.

KEY ELEMENTS

The LRTAP Convention is the only legally binding international instrument aimed at addressing criteria air pollutants. It entered into force in 1983 and has since been amended by eight protocols. These include protocols on sulphur dioxide (1985 Helsinki and 1994 Oslo Protocols), nitrogen oxides (1988 Sofia Protocol), heavy metals, persistent organic pollutants and funding for the scientific work of the Convention. Canada is a Party to all of the protocols (except for the Geneva Protocol on VOCs). The Gothenburg Protocol is the most recent protocol. The Gothenburg Protocol contains emissions ceilings for 2010 and beyond for SO_2, NO_x, NH_3, and VOCs.

Commitments for 2020 and beyond for those pollutants as well as fine particulate matter ($PM_{2.5}$) are included in the amended Protocol, expressed as a percentage reduction from 2005. NH_3 commitments apply to Europe only.

Canada's 2010 emissions ceilings are 1,450kt for SO_2, 2,250kt for NO_x, and 2,100kt for VOCs. Canada's emission reduction commitments from 2005 levels for 2020 and beyond are 55% for SO_2, 35% for NO_x, 20% for VOCs, and 25% for $PM_{2.5}$. Canada is in a position to comply with these obligations.

Black carbon, a short-lived climate pollutant, was added as a component of particulate matter to the amended Protocol, which calls for $PM_{2.5}$ reductions to focus on sources that have significant black carbon content, and for Parties to voluntarily report emissions and projections of black carbon.

The Protocol also contains limit values for several stationary and mobile sources/sectors as well as some equipment types.

This multi-pollutant, multi-effect protocol is meant to eventually replace the older protocols. When all Parties ratify the amended Protocol, their obligations under the following existing Protocols: SO_2 (1985 Helsinki and 1994 Oslo Protocols); NO_x (1988 Sofia Protocol); and VOC (1991 Geneva Protocol); will become null and void.

EXPECTED RESULTS

The Protocol is expected to result in reductions in the transport of the pollutants it covers, which should result in lower levels of ambient PM and ozone, and reduce acidification and eutrophication. It would also be expected to deliver health and ecosystem benefits, as well as potential near-term climate benefits from reductions of black carbon and ozone.

CANADA'S INVOLVEMENT

This Protocol is of interest to Canada because it addresses transboundary air pollution in the UNECE region, and is a key vehicle for reducing these pollutants, some of which are transported to North America.

Canada ratified the Gothenburg Protocol and its 2012 amendments on November 28, 2017. Canada and the U.S. also manage transboundary pollution bilaterally under the Canada-U.S. Air Quality Agreement.

An ECCC official was elected as Chair of the Working Group on Strategies and Review, the negotiating body for the LRTAP Convention, in 2016 and continues to hold that role. Canada actively and constructively contributes to the scientific and policy work done under LRTAP.

RESULTS / PROGRESS

Activities

Canada continues to participate constructively in the Convention and was actively involved in negotiations to amend the Gothenburg Protocol, a process finalized in 2012. Canada has also contributed by providing the Chair for a number of negotiating groups that delivered key results important to finalizing the amended Protocol and continues to show leadership on the environment by ratifying the Protocol.

Canada has brought forward a Canada-wide Air Quality Management System (AQMS) that is a comprehensive approach for reducing air pollution. It is the product of unprecedented collaboration by the federal, provincial and territorial governments and stakeholders. Canadian ambient air quality standards are the driver for air quality management across the country. Provinces and territories are responsible for managing air zones within their boundaries to drive for continuous improvement and to prevent exceedances of the ambient standards. Standards have been established for fine particulate matter, ozone, nitrogen dioxide and sulphur dioxide..

A key element of AQMS is industrial emission requirements. Canada is moving forward with the implementation of regulatory and non-regulatory instruments to reduce air pollutant emissions from major industrial sources.

ECCC has published and implemented several non-regulatory instruments. These include codes of practice, pollution prevention plans, environmental guidelines and several company specific environmental performance agreements to reduce emissions from specific industrial sectors. In this same period, the Multi-Sector Air Pollutants Regulations were introduced, requiring a number of industrial sources to reduce their NOx emissions for two equipment-types used in major industrial sectors and to control NOx and SO_2 emitted

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by the cement manufacturing industry. These instruments were introduced as part of Canada's commitment to implement the AQMS.

Canada met its emission reduction commitments in the older Helsinki (SO_2), Oslo (SO_2) and Sofia (NO_x) Protocols many years ago. Emissions of SO_2 and NO_x have significantly decreased in Canada in recent decades. In 2016, 1,100 kt of SO_2 were emitted in Canada, which is 63% below Canada's national cap under the 1994 Oslo Protocol. Canada's emissions of NO_x in 2016 were 1,800 kt, which is 21% below Canada's commitment under the 1988 Sofia Protocol.

Ambient levels of air pollution have also improved. As of 2015, 70% of Canadians were living in areas where outdoor pollution levels for fine particulate matter, ozone, sulphur dioxide, and nitrogen dioxide were below the Canadian Ambient Air Quality Standards. This is an improvement from 2007, when only 60% of the population lived in areas meeting the standards Canada also works with the U.S. to reduce transboundary air pollution bilaterally. As a result of commitments by both countries, transboundary air pollution has decreased significantly in Canada, particularly in areas close to the border. Through efforts under the Canada-U.S. Air Quality Agreement (AQA), emissions of SO_2, VOCs and NO_x have been substantially reduced. For example, between 1990 and 2014, Canada's total SO_2 emissions decreased by 63%, and Canada's NO_x emissions decreased by 53% between 2000 and 2014 in the area covered by the agreement.

Reports

Canada submits inventory reports for the pollutants covered by the Protocol in its annual submission to the UNECE. Canada will continue to report on these pollutants and meet its annual reporting requirements. Canada's most recent air pollutant inventory can be accessed at: https://www.canada.ca/en/environment-climate-change/services/pollutants/air-emissions-inventory-overview.html. It's official submission to the UNECE can be found at: https://www.ceip.at/ms/ceip_home1/ceip_home/status_reporting/2019_submissions/

Results

Many air pollutants travel long distances and across national boundaries and affect countries in which the pollutants did not originate. The Gothenburg Protocol will assist Canada in improving air quality by addressing pollutants from outside its borders that nevertheless impact Canadian air quality. Ratifying the Gothenburg Protocol was an important step in ensuring that Canadians have clean air and a healthier environment.

Major recent accomplishments for the Convention that have implications for its protocols include undertaking a scientific assessment of the Convention (SAR); developing a policy response to the recommendations of the report of the scientific assessment and updating the Long-term Strategy for the Convention based on that policy response. These activities will have an impact on the Gothenburg Protocol. Beginning in 2019, Parties are expected to begin discussions to prepare for the upcoming review of the sufficiency and effectiveness of the Gothenburg Protocol. The SAR indicates that even with full implementation of the Convention and its protocols further work will still be required especially to address ozone levels which are predicted to increase after 2020, driven mostly by emissions from outside the geographic region of the Convention.

Canada